NAVAL AVIATION NEWS

In this Issue:

Interim Sea Control Ship

JUNE 1972

NAVAL AVIATION NEWS

FIFTY-FOURTH YEAR OF PUBLICATION

FEATURES

Covers

On the front cover, Corsairs from VA-27 drop their bombs somewhere over South Vietnam. PH3 R. J. Gorman shot the reflection of an aircrewman during HM-12's Souda Bay deployment, opposite, while PH1 C. J. Markowski gets an "attaboy" for his gem on the back cover.

THE STAFF

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EDITOR'S CORNER

The last of the February reader survey forms seem to have trickled in, and the information passed on to you in our preliminary assessment in the April issue has held up quite well. For lack of space at that time, we could only discuss a few of the more significant items. This report will deal with some of the more interesting details passed over previously.

First of all, those returning the questionnaire break down as follows: 56 percent officers, 37 percent enlisted and 7 percent civilian. Though most of these responses naturally came from Navy and Marine personnel, a number were sent in by members of the Air Force. The civilian inputs came from college students, professional men, parents of Navy airmen and Navy Department civil service personnel.

Answers to our question concerning the number of individuals who see each issue have, however, raised some doubts concerning the accuracy of relating the response statistics to actual readership patterns. A large group indicates that only three to six people see their copy. These, in large part, are senior officers or individuals on detached duty. On the other hand, another large group indicates that 20 or more see each of their copies. Most of this group appear to be enlisted personnel. One responder said that up to 100 individuals see his NANews. *This seems to indicate that a much greater percentage of our readers are enlisted men than the response statistics show. There also seems to be an imbalance in distribution within certain units. We should point out that increased distribution to your unit may be requested if the current distribution is inadequate. This may be accomplished by notifying our editorial office.*

Many of our readers have criticized what they call the "PAO tone" of the magazine and a number of individuals have asked us to "tell it like it is." While we have no real objection to the "warts and all" approach, realizing that getting the job done is not without its frustrations and unglamorous side, we are largely dependent upon what the unit public affairs officer sends us as a release. Thus, some (or many) of the articles or news items may sound a bit more glowing than the mech, with skinned knuckles, or the pilot, after a long and exhausting day, may view the actual event. You can help us and your PAO in this matter. Go talk to him. Let him know what is going on at your level. Don't make him dig it all out by himself. You can do a lot to improve your unit's releases and in turn see the kind of report in NANews *which tells the whole story of Naval Aviation.*

This leads to the next most common write-in suggestion — more articles on a variety of specific subjects. Some readers desire to see more articles on aviation-related subjects which are outside the area of squadron operations. Some of the subjects suggested include tower operations, aero clubs, aviation medicine and prominent Naval Aviators. Others asked that we feature material concerning their particular interest, such as helicopter operations with hospital ships and LPD's or an up-to-date review of the flight training command. Some of these will be covered in future issues.

While we are intrigued with these suggestions and seriously wish to present these interesting aspects of Naval Aviation, we are again at the mercy of our contributors. The NANews *staff is small and must depend almost entirely upon your submissions or material we can find in the Washington, D.C., area. As much as we would like to publish feature articles on all the above mentioned subjects, we invariably come down to what material is sent us. If you know of a good story that needs telling, just supply us with the facts and as good a selection of photographs as you can get together and we'll do our best to see that it is told.*

We have had the good fortune to receive two articles in recent months which do deal with out-of-the-ordinary Naval Aviation subjects. In December, "Let George Do It" dealt with the problems of development and introduction of new technology. This month, Ens. Patrick Moran, an aeronautical maintenance duty officer with a background in experimental psychology, provides Naval Aviation News' *readers with a critical look at how human engineering must be taken into consideration in aircraft design in his article "Square Pegs, Round Holes."*

One last item remains to be reported. That is the statistics on other aviation magazines our responders read. Leading the list is Approach *which is ahead of its nearest competitor,* Aviation Week, *by a nearly two to one edge.*

Following those two in popularity and in declining order are Mech, Flying *and* Crossfeed. *Readers also listed a vast assortment of other aviation magazines, both military and civilian. However, since the number of questionnaires returned far exceeded the most frequently named other aviation magazines, we assume that* Naval Aviation News *remains your favorite reading. With your help we will try to maintain that position and improve its content and appearance.*

NAVAL AVIATION NEWS
1911 1972

During shipboard evaluation at NS Norfolk, a Tomcat went aboard a carrier for the first time.

F-14 Goes Aboard for Suitability Tests

PATUXENT RIVER, Md. — One of the Navy's new air superiority fighters, F-14 *Tomcat* #10, arrived at the Naval Air Test Center in April for contractor carrier suitability demonstrations.

The swing-wing, twin-engine aircraft is undergoing a series of catapult launches, automatic carrier landing system checks and arrested landings as the contractor demonstrates the carrier suitability of the F-14.

Grumman test pilot Charlie Brown will be at the controls during the tests. Monitoring the demonstrations and gathering data will be the Carrier Suitability Branch of the Flight Test Division.

Preliminary tests before the *Tomcat* goes into instrumentation for the carrier suitability work will include airspeed system calibrations and weight and balance determination.

The contractor demonstration flights began the latter part of April and will continue until formal BIS service acceptance trials start early in 1973.

And before *Tomcat* #10 went to Patuxent River, *Tomcat* #11 was hoisted aboard USS *Independence* at NS Norfolk for initial shipboard evaluation.

After the plane's physical interface and compatibility with the carrier were checked, the *Tomcat* was flown to Point Mugu for further testing.

Last 'Recip' Class Graduates Four Mechs

MEMPHIS, Tenn. — Another era in Naval Aviation ended at NATTC in April when the last Aviation Machinist's Mate (Reciprocating) "B" Class students were graduated.

Four "recip" mechanics, PO1 J. O. Graves, and PO2's R. B. Buck, J. R. Taylor and V. N. Romer were the last of thousands of students to graduate from the 13-week advanced school since it was established in 1961.

"The school has been in the process of phasing out for some time now," said Commander James L. Berry. "Because of the increasing demands for more speed and longer range, the reciprocating engines are rapidly being phased out of the fleet.

"There are presently less than a thousand piston-engine aircraft attached to training, transport, composite, and antisubmarine warfare squadrons. This number will be drastically reduced when the S-3A *Viking* replaces the propeller-driven S-2 *Tracker*.

"The Navy plans to be completely out of reciprocating engines by 1979," Cdr. Berry continued, "and we now have enough senior mechanics on duty to more than meet our needs until then." He said that any additional or special training will be done by fleet components, such as the Naval Air Maintenance Training Group.

ADR "A", the basic school, will remain, at least for the next few years. "There will, however, be a continuing but ever decreasing need for 'recip' mechanics," said Cdr. Berry.

NATTC's Grounded Air Armada

MEMPHIS, Tenn. — The Naval Air Technical Training Command's aircraft maintenance department has a unique fleet of aircraft — unique because none fly.

The 135 obsolete planes, stricken from the Navy's list, are used as training aids for certain aviation technical training schools.

Some, such as the WW II TBM *Avenger*, could qualify as museum pieces. The tattered TBM isn't used as a training aid but sits on the "antique line," older by many years than the other obsolete aircraft nearby.

Besides the TBM, the armada includes 11 other types of craft, from helicopters to jets. Colorful names such as *Cougar, Demon, Fury* and *Skyraider* bring a nostalgic mist to the eyes of older pilots.

The planes arrived at their final destination from such places as El Toro, Pensacola, Litchfield Park, and even Japan. Some were flown in and then rendered unflyable while others arrived in crates aboard trucks.

The planes are repaired, painted and maintained by the aircraft maintenance department.

Thirty-five have engines which must have a complete maintenance check every 17 weeks. These are used for student turn-up practice at the Aviation Machinist's Mate School. The Aviation Structural Mechanic School uses some of the engineless planes to perfect student skills in metal work or hydraulic repair. Five aircraft are taxi planes used to train aviation fundamentals students in the proper hand signals for taxiing.

Nearly half of the maintenance department is assigned to ground support — repairing and maintaining over 400 pieces of support ground equipment.

The efforts of a six-man crew, headed by PO1 Ralph Miller, often appear before the general public. Miller and his crew put the "window dressing" on the aircraft which are occasionally donated to the civilian community for parks or schools.

The crew painted and repaired the A-4 which was seen by thousands during this year's Mid-South Fair in Memphis. They also prepared two F-1E *Furies*, one for delivery to a school for retarded children in Arlington, Tenn., and one for a downtown park in Memphis.

"There's a lot more to preparing these planes for delivery to the civilian community than painting them," says Miller. "If children are going to play around them, we have to ensure that they are not injured by our oversight. We either remove or make safe any sharp edges on which a child could be injured. Any openings into which a child can crawl, such as jet intakes, are covered with wire screens."

When an aircraft has served its purpose, it often, literally, goes out in a blaze of glory, burned to train crash crew students.

The Fustest and the Mostest

On the inside front cover of the March issue of *NANews*, we printed information as to where lithographs of the March cover, above, could be obtained.

After we went to press, Douglas Aircraft Company presented the lithos to the Naval Aviation Museum with the provision that they be used to raise funds for the museum's building fund.

You may obtain a litho by writing direct to the Naval Aviation Museum, Pensacola, Fla. 32512, and enclosing a donation of $4.00.

New Radar Developed

ARLINGTON, Va. — A radar that can "see" beneath the ground to variable depths is being studied by the Navy as a possible system for detecting, locating and describing buried objects.

The broad band pulse type radar system, dubbed Electromagnetic Subsurface Profiling (ESP), was developed by the Geophysical Survey Systems, under a contract with the Office of Naval Research. The company is exploring the application of the radar to Navy and Marine use.

Basically, ESP is the electromagnetic equivalent of the seismic method of geophysical exploration. Transverse electromagnetic waves, the equivalent of longitudinal acoustic waves used in seismic sounders, are produced by a special wave launching device. Pulsed into the ground, the waves are reflected back to the device, producing a continuous profile of the subsurface area and revealing various objects and different materials.

The portable system operates on a few watts of power and the signal can be increased to probe deeper layers in the earth.

One Navy application is the examination of permafrost in arctic and subarctic areas. Any construction or land use in these areas depends on understanding the nature and extent of subsurface conditions, particularly whether large masses of ground ice exist beneath the surface. If this is not carefully ascertained, significant ground subsidence can take place, leading to costly repairs or abandonment of the structure.

The borings presently used generally give an incomplete and often misleading picture of subsurface conditions. Seismic and other geophysical methods have been used with less success.

In one experiment conducted with ESP, six tons of block ice were buried several feet down in sand and silt. The ESP profile clearly indicated the presence and location of the ice against the background of the sand and silt. Further tests are now being conducted in actual permafrost near Barrow, Alaska, the site of ONR's Naval Arctic Research Laboratory.

In other experiments, ESP radar precisely located various objects, including wire strand, wood, cement blocks and metals, buried in naturally occurring deltaic sediments. In one test a tunnel was detected.

Further research is expected to devise new data processing techniques in order to display more clearly the configuration and signal response of buried objects. ONR is planning to explore the development of an airborne ESP system for the Navy.

Compliments of CNO

MEMPHIS, Tenn. — PO2 John W. Dunnivant, a student in the Advanced First Term Avionics Class at the Naval Air Technical Training Center, recently received a flight suit from Admiral Elmo R. Zumwalt, Jr., Chief of Naval Operations. It was a replacement for the one the admiral borrowed from Dunnivant in the Spring of 1970 when he visited *Forrestal.*

Dunnivant had asked CNO, during his recent visit to Memphis, if he could have an "autographed" flight suit, since the one borrowed was not returned after the admiral left the ship on an aircraft from Dunnivant's squadron, Airborne Early Warning Squadron 126. (At the time, Dunnivant was the only person in the squadron who had a flight suit which would fit the admiral.)

A note attached to the new suit read: "Enclosed with this letter is a new flight suit for you. I appreciate your reminder concerning this item, which I borrowed from you on board USS *Forrestal.* Thank you very much for the loan of the flight suit and very best wishes for the remainder of your tour at Navy Memphis. Warm Regards. E. R. Zumwalt, Jr., Admiral, U.S. Navy."

PO2 Dunnivant holds his new flight suit.

NASA Measures Plankton

WASHINGTON, D.C. — An airborne laser system, developed by NASA's Wallops Station and Langley Research Center, Va., is being used to measure the presence of tiny drifting plankton in the Chesapeake Bay and Chincoteague Island offshore areas.

The system is mounted on a helicopter and uses an orange light flash from the laser which hits the water and is absorbed by the plankton. The plankton then give off a very faint infrared radiation beam, known as laser induced fluorescence, which is measured and recorded through a telescope on the helicopter. Tests have confirmed the feasibility of using such a laser system mounted on a low flying aircraft or surface vessel for the observation of these chlorophyll-bearing marine microorganisms.

Drifting plant life, known as phytoplankton or algae, is not only a vital source of marine food but also replenishes about 70 percent of the Earth's fresh oxygen supply. Many ecologists have expressed concern about various forms of pollution which could gradually curtail such marine biological activity.

There are currently very few methods for measuring plankton and the laser system has certain advantages over other methods. The airborne system can map plankton distribution rapidly; it has its own illumination, making day and night monitoring possible; and an improved version of the system can be built to measure plankton distribution not only at the surface but also at varying levels below the surface.

Final Flight for Corps' Last Active UH-34D

QUANTICO, Va. — The last active Marine UH-34D *Seahorse* flew its final mission in March when it arrived at the Marine Corps air station to take its place in the Marine Corps Air Museum.

The helicopter has been to Quantico before. In 1957, it was attached to HMX-1 and flew presidential missions for two presidents. The UH-34D flew to its new home from Headquarters Squadron, FMFLant in Norfolk, Va.

Rio Grande Navy Extends Helping Hand

ALBUQUERQUE, N. M. — An international wildlife trade between the state of New Mexico and the country of Mexico was recently completed, with the help of the Naval Weapons Evaluation Facility (NWEF), better known as the "Rio Grande Navy."

Negotiations between New Mexico's Department of Game and Fish and the Mexican government were started in 1968 to replenish the two dwindling herds of rare, desert bighorn sheep in New Mexico and the diminished herds of antelope in the state of Sonora, Mexico. Final details of a trade of 50 antelope for five bighorn sheep were worked out in the latter part of 1971.

The problem then became one of logistics — how to effect the actual trade. No commercial airline would consider the project. The commanding officer of NWEF, Captain Richard H. Stolpe, was approached about use of the facility's C-54 *Skymaster.* He agreed and, with the cooperation of several Federal agencies and interested individuals, the needed approval was received in January.

Game department personnel began rounding up the antelope with a helicopter near Raton, N. M., but suffered a serious setback when the helo crashed.

Another helicopter was located, the antelope were rounded up and placed in crates, then loaded onto the C-54 in Trinidad, Colo., and flown to San Luis Potosi, Mexico.

And the Rio Grande Navy recently achieved a milestone — 10,000 accident-free hours — flying many types of Navy aircraft, including the C-54, F-4, A-3, A-4, TA-4, A-5, A6 and A-7, each with the black Indian Thunderbird emblem on its tail. The mark was logged by Commander F. M. Humphreys, Jr., aircraft projects officer, in an A-7A.

NWEF conducts acceptance evaluations and safety studies of surface, subsurface and air-launched nuclear weapons systems; assists the Board of Inspection and Survey in the testing of naval aircraft; and develops, publishes and maintains checklists for loading and unloading nuclear and non-nuclear weapons on naval aircraft.

GRAMPAW PETTIBONE

From Rescuer to Rescuee

An HH-2D *Seasprite* lifted from NAS Coast to conduct a night area familiarization training flight in the local flying area. The flight proceeded south to a point 12 miles north of the local TACAN and executed a 180-degree turn to return to the vicinity of the station. When they were about four miles south of the base, both the pilot and copilot noticed a flashing white light coming from a bay area. The pilot decided to investigate and found a small civilian boat which seemed to be in distress.

The first approach was at 50 feet, a low fly-by. Using the aircraft loud hailer, the pilot asked the men in the boat if they required assistance. They gave a "thumbs up" signal.

The aircraft then climbed to orbit at 1,000 feet and held an orbit for 20 minutes while the pilots attempted to contact a local Coast Guard station. They noticed the light in the boat was getting very weak; therefore, a second approach was made to drop an electric marker light.

Once again, the aircraft climbed to 1,000 feet and orbited the location for an hour and fifteen minutes. A third approach was begun in order to

inform the boat that the *Seasprite* was departing because of minimum fuel but that assistance was on the way. But this approach was made to the electric light, which had drifted away from the boat.

Then, after climbing to 1,000 feet in order to communicate with another helicopter in the area, a fourth and final approach was made. This one had a much longer straightaway than the preceding three and ended when the helicopter hit the water approximately one mile short of the boat in distress.

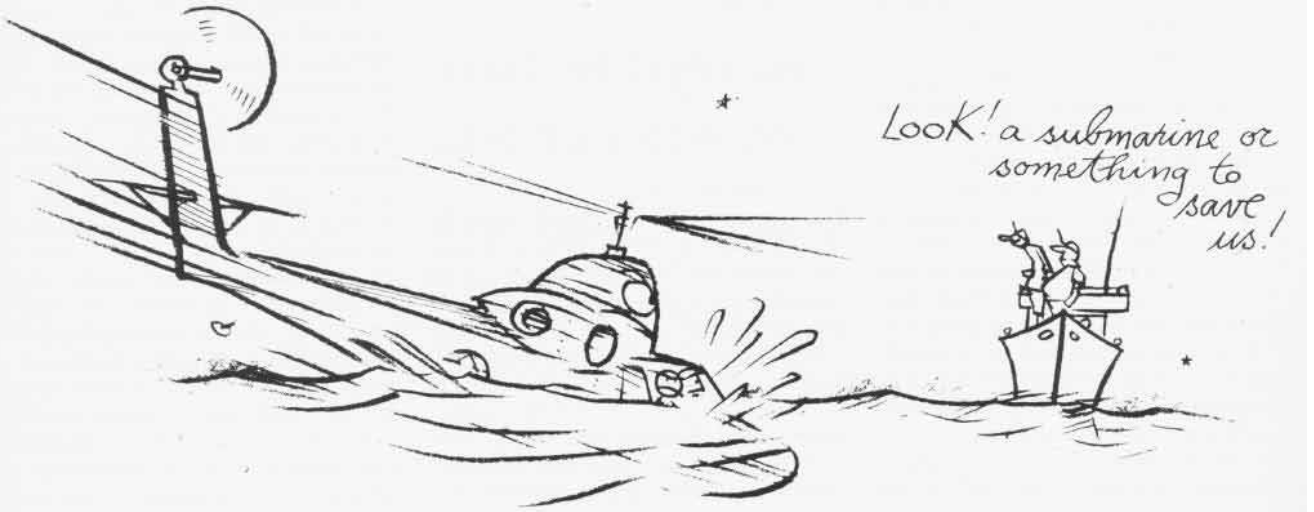
Grampaw Pettibone says:

Blundering blunderins! Once the pilot determined that the personnel in the boat were not in immediate danger, there was no reason for his continued low passes. There was even less reason when you consider the lack of water survival equipment aboard the aircraft — no life vests!

Until our drivers and crew members are required to have webfeet, you'd better carry that overwater survival gear just in case you may have to take your flyin' machine over water.

As it turns out, both drivers were looking out of the cockpit when the helo struck the water, heads up and locked.

I don't believe it! What a miserable example of crew coordination. Seems to me this lad needs more crew training before he continues as a helicopter aircraft commander. Nuff said.



ILLUSTRATED BY Osborn

A Stitch in Time

I received a letter recently and it sounds like this fella had a good idea. Never one to pass up an idea that would add some oil to those movin' parts which make up safety, I'm passing it along.

Dear Grampaw Pettibone,

Tower Chiefs take heed! How many pilots flying out of your airport are completely familiar with the airport and local flying rules? Did I hear an answer? What was that you said? Oh! The squadrons are responsible for area familiarization, are they?? Well, that may be true; however, think how much safer your airport would be if every airplane driver knew what you think he knows.

As a case in point, I offer the following: Twenty-one local pilots were given a written, ten-question test at our NAS. The subject was local procedures, positive control and basic instrument procedure at this particular airport. The results were astounding!

One question (obviously the easiest) was missed by only eight of the twenty-one. All other questions were missed by at least 50 percent. One was missed by 18. It should be pointed out that these were not trick questions on "off-the-wall" topics, but questions on valid, important issues.

Is there a squadron safety officer reading this letter? Well, sir, before you finish this magazine, I strongly recommend that you call base ops and ask to speak to the tower chief. Don't wait for one of your nuggets to become a statistic. Do it now!

Tower chiefs, haven't you heard from that squadron safety officer yet? Don't be proud, call him. Get together and talk. Set up briefings and discuss problem areas. What was that I heard mumbled? You don't have any problem areas? *Prove it! Make up a test.*

Try it — you'll like it!

A Complete Waste

When the two Marine Aviators launched their *Crusaders* on an instrument training flight, destination weather was forecast at 3,000 scattered, variable, broken; seven miles' visibility.

Fifteen minutes into the flight, the lead F-8K reported TACAN failure but the flight leader, who was flying wingman, decided to continue the flight in the same formation. The flight leader would pass heading and distance information to the troubled lead aircraft.

On arrival at destination, the flight was cleared for a TACAN approach. The weather was now 800 broken, 3,000 overcast with visibility four miles. The formation remained the same, the flight leader/wingman still providing vectors for the lead aircraft. They broke out at 1,200 feet, reported the field in sight and were cleared to land. The lead aircraft was to land while the wingman made a low pass.

The F-8K landed slightly fast and began to porpoise. At the same time, the harassed pilot noted an unsafe nose gear and added power for a go-around. During climbout, noting the nose-gear gauge now indicated "safe," the pilot requested permission to remain VFR in the pattern for another landing. Because of the lack of radar separation from the other F-8, his request was denied. He was advised to climb straight ahead to 2,000 and then make a left turn.

Now on instruments, he commenced a left turn, using a 30-degree angle of bank. During the turn, the pilot noted his gyro horizon indicating a 90-degree left bank. He moved the stick to the right with no effect. He was reading 1,500 feet descending. He ejected.

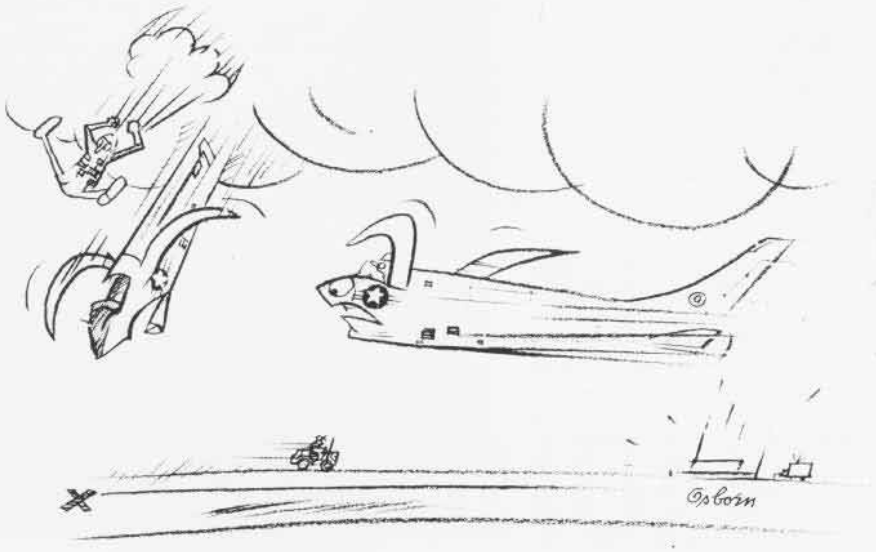
The pilot landed safely but the *Crusader* was a total loss.

Grampaw Pettibone says:

Great jumpin' Jehosaphat!! If this fiasco wouldn't wilt the lily, nothin' will! Can you imagine allowin' a fella to go on a cross-country in violation of NATOPS. He didn't have 25 hours in type and he hadn't had an in-type instrument check. It's pretty tough to knock supervision 'cause *there weren't any!* Who's running the show in this outfit? If it were me, I'd have myself a new ops officer and one less flight leader. This accident is pathetic and the most preventable type.

There are no excuses!

'I admit that the accident was due to pilot error. . .but there was nothing wrong with my judgment or technique.'



SQUARE PEGS

Which bolt goes in which hole is what many a mechanic asks when replacing the tail access panel. Imagine his thoughts when he gets through this assortment, only to find the last bolt is too long and pushes the locking nut inside. Later model A-7's have numbers and symbols on the panel, but for some reason they often get painted over.

Ensign Patrick J. Moran, USNR
Line Division Officer, WST
NATC Patuxent River, Md.

ROUND HOLES

PH2 David L. Breysogle

Man is unique in his ability to conceive of exotic inventions, setting them down on paper as designs and giving them reality as machines.

To insure their proper functioning, he instructs others in the proper workings and maintenance of his machines. This, of course, is the basic pattern of development for our modern naval aircraft and their tactical systems. However, the situation arises where a sophisticated aircraft system is perfected and the maintenance personnel expertly trained, but little consideration has been given to the human engineering aspects of the actual maintenance of the system. The result is a system cumbersome to maintain.

Many of the discrepancies cited in this article were found during recent Board of Inspection and Survey trials or on existing operational aircraft.

Nowhere does the critical need for maintainability show itself more than in line maintenance where time is crucial in meeting operational commitments. Simple *design* changes in aircraft can reduce that maintenance time.

For example, the accessibility of many radar units could be improved with a built-in strut attached to the radome, eliminating the need for the special tool. The radome could be opened more easily, while the number of tools for maintenance would be decreased.

The instrument panel of a cockpit becomes a maintenance headache due to the variety of screws used to hold the various indicators in their brackets. Standardization of one type of screw would reduce the number of screwdrivers carried by line personnel, and the human problem of using the wrong screwdriver would be greatly reduced.

The instrument panel has yet another problem. When an instrument is ready to be pulled out from its bracket, the connecting cable is usually too short. The instrument just clears the bracket with little room for the maintenance man to get his hand around to the back to disconnect it. He must force his hand into that small space and by minute turns disconnect the cable. A simple five-minute maintenance action becomes a half-hour ordeal. The process is repeated when reinstalling the instrument.

There is the added danger that the pins may be bent or broken in this procedure. Sometimes the problem can be circumvented by pulling out an adjacent instrument, whose cable is long enough, and using its empty bracket as an access to disconnect the concerned instrument. Both procedures show how a simple maintenance action is transformed into a project due to the lack of human engineering.

Maintainability is not only enhanced by a reduction of the variety of nuts and bolts, but also by their judicious use. In one instance, a circuit breaker access panel was attached by 24 screws. Since it was definitely not a stress panel, it was recommended that the screws be replaced by four quick release fasteners. Such nonessential built-in tasks, if not corrected, consume a large amount of maintenance time.

Another frequent aircraft maintenance problem arises from the use of bulky test equipment. The heavier the equipment the more it

will be bumped against steel, especially aboard ship, making its reliability questionable, if not invalid. Test equipment should not be cumbersome to operate and essential test points should be easily accessible to maintenance personnel.

A system's go-no-go check should be a fast routine procedure. Increased human engineering in test equipment and test procedures would increase the up-time of avionics systems in aircraft.

The operational up-time of an aircraft and its related systems coincides with its ease of maintainability. A particular aspect of this is the lack of foresight in the design of avionics equipment for inflight maintenance. In many patrol aircraft, the cables to the weapons replacement assembly (WRA) "black boxes" are not labeled correctly. For easier maintenance, the cables should be labeled to match the WRA receptacles. Without proper labeling it is very likely that the cables will be hooked up to the wrong receptacle or even the wrong black box, adding another episode to the chronicle of Murphy's Law (anything that *can* go wrong, *will* go wrong).

Improper routing of avionics rack wires works against the maintenance effort, causing more problems than are solved. The wires are often pinched or crimped when the black box is pulled out of the rack. There is the added possibility that the cables could hang up, making it impossible for the black box to clear the rack. Naturally, flight crew personnel are expected to earn their pay, but their maintenance efforts should be kept as uncomplicated as possible.

Another problem arises because engineers and designers often have little concept of inflight maintenance requirements of the system they are designing.

Many display modules, when pulled from their rack, can easily be left hanging from their wires and cables. The danger of a connecting wire breaking is obvious. Ideally, all display modules for inflight maintenance should be on roll-out racks. Stop limits and manual unlatching mechanisms should be incorporated into the rack to prevent dropping the unit or breaking the wires. Improper rack design impedes any type of maintenance action. In one instance, a rack had to be completely dismantled in order to remove a relay assembly. If inflight maintenance is to be successful, ease of maintenance must be designed into the equipment.

Simple design deficiencies can be as inconspicuous as the improper placement of a fuse in a WRA unit. One ICS control box has its fuse and spare located inside the unit. The control box has to be disassembled to replace the fuse. The fuse and its replacement should have been designed to be accessible from the outside of the control box. Without proper human engineering considerations at the design level, cost in excessive expenditure of maintenance time or contractor modifications will continue to increase.

It must be emphasized to designers that the lack of human engineering, even in the simplest aircraft part, degrades the aircraft's maintainability. Most WRA's have five-sided, can-type

dust covers which protect electronic components, but inhibit quick access. Dust covers with quick-release side panels held together by fasteners would be ideal for inflight maintenance and would not endanger the structural integrity of the WRA unit.

Small deficiencies in human engineering are not only worthy of note because they cause a loss of aircraft operational time, but also because of the potential danger to maintenance personnel. The upper canoe radome in one series of patrol aircraft was bolted to the fuselage by some 30 bolts. There was little doubt that the canoe was securely fastened, but there was some doubt as to how maintenance personnel could safely open the radome.

There was insufficient footing space for maintenance personnel to unbolt the canoe, let alone remove it so maintenance could be initiated. Use of hinge and wing clamp fasteners was recommended, making access to the canoe radome a simple maintenance procedure. This, of course, was not an original idea in the field of human engineering, but it was a very practical idea since a potential safety hazard was eliminated.

Human engineering and safety go hand in hand. Designers must not only be concerned about the accessibility and maintainability of components, but also whether or not the equipment is safe to work on. Some patrol aircraft have a retractable radome that can be actuated while a maintainance man is working inside. A safety mechanism inside the radome should have been designed in the early research and development stage.

If there is one thing that human engineering would do, it is relieve the frustration level of maintenance personnel. One human engineering principle of design which should be employed is the placing of high failure items in front of low failure items in the various access panels on aircraft. This one simple procedure would make many a maintenance man's day an easier one.

The proper labeling of cable junctions on black boxes would reduce the bewilderment of a technician when he is attempting to connect the proper cable to the correct receptacle. And a technician's hands painfully testify that the connecting junctions for black boxes are not spaced far enough apart so the cables can be firmly gripped for connecting and disconnecting.

The anguish of the men in the airframes department would be lessened if the different sizes of bolts could be stenciled on the stress access panels as they are in most A-7's. If a bolt that is too long is put in an access panel, it will force out the anchor nut. This small mistake could lead to removing the stress panel, inserting another anchor nut and reinstalling the panel, making a long day longer.

Design changes in existing aircraft should be carefully examined before incorporation or a previously simple maintenance action could become a very involved one. The A-7E is the only model in that series that has the water separator for the refrigeration unit panel just above the starboard nosewheel door. Everytime the water separator is pulled, the nosewheel door has to be unlatched and swung

PH2 David L. Breysogle

SQUARE PEGS

a reasonable distance away from the refrigeration panel allowing room to remove the high torque screws.

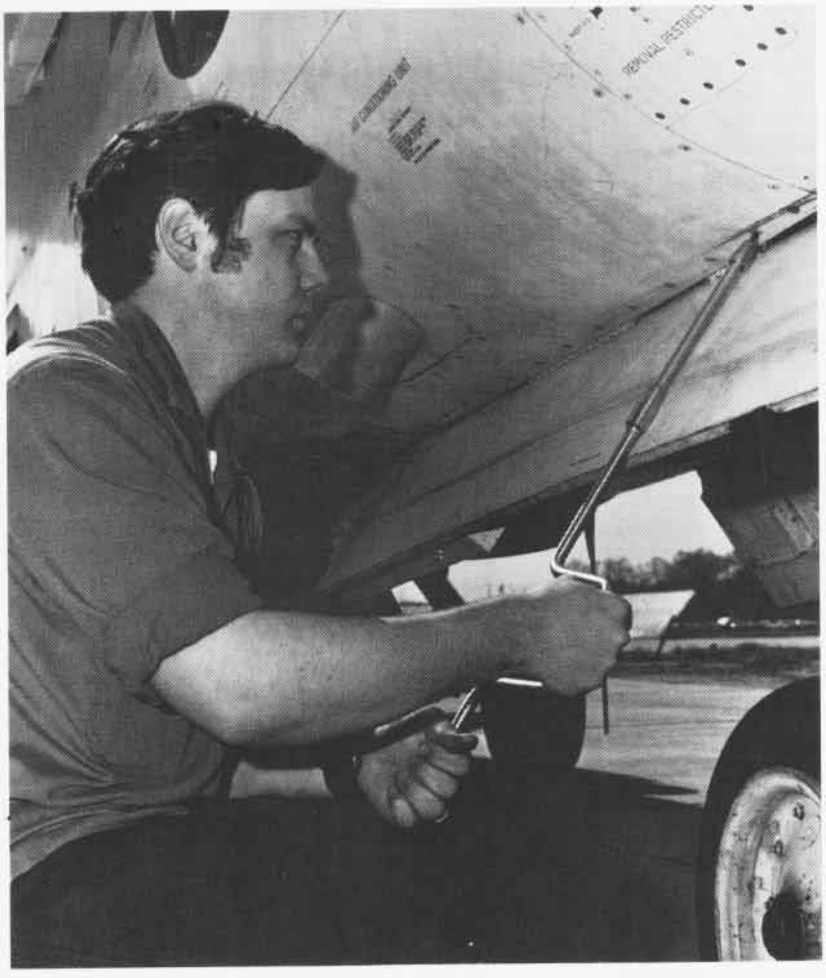
What actually happens is that when the nosewheel door is unlatched, it swings down only about an inch, and the door meets the nosewheel steering cylinder. It is impossible to get a straight angle with a high torque screwdriver to loosen the fasteners just inboard of the nosewheel door.

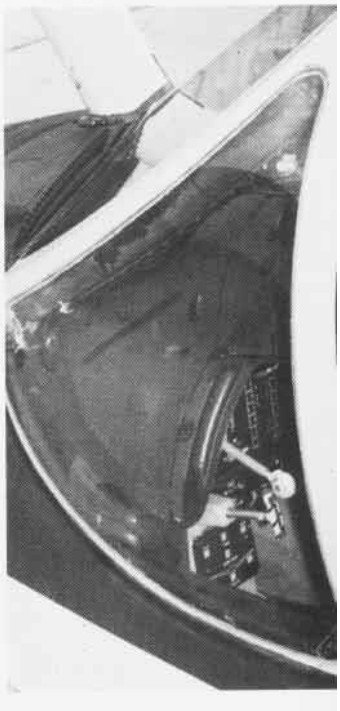
In the quest for advanced aircraft and weapons systems, we sometimes become entranced with the possibility of their tactical importance but overlook the human limitations of the men who operate and maintain the systems. No tactical system is of value if it cannot be maintained. The maintainability of systems should be designed around maintenance personnel with an eye for human capabilities and limitations.

In the primary cycle of systems research and development, project results are justifiably based on system success. The artificial environment of a laboratory or an airborne test bed, however, does not necessarily indicate the maintainability of the production system.

Because of the complexity of new systems and the need to meet deadlines, design engineers sometimes overlook human engineering considerations in their projects. Before a system is scheduled into full production and implemented into the fleet, the human engineering deficiencies should be identified and worked out.

Channels of communication between design engineers, human engineers and project managers must be opened in the early phase of research and development. Factors that contribute to the degradation of system maintainability can then be diagnosed early, cutting costs that occur later in assembly line modifications.





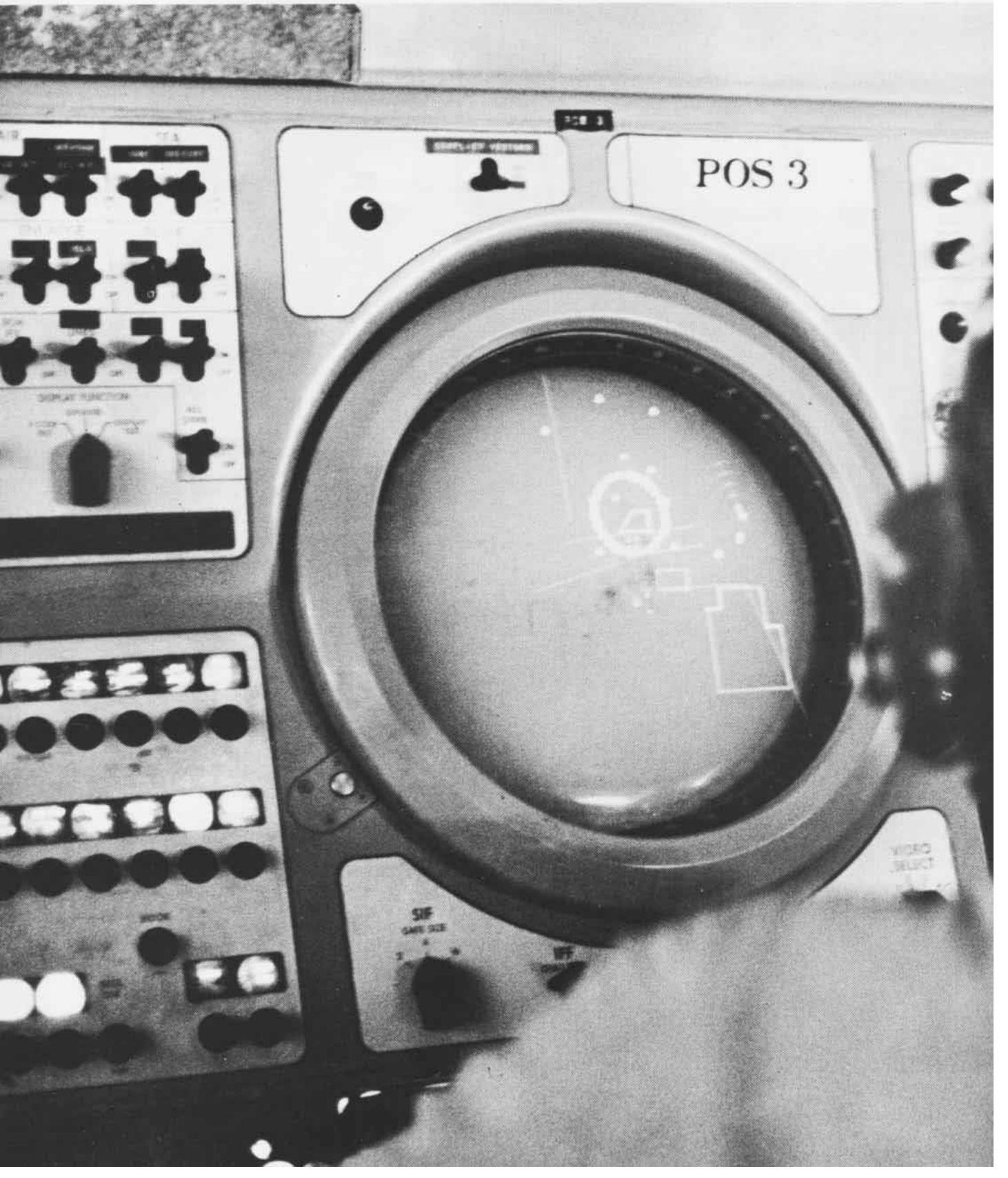
ROUND HOLES

AT3 Joseph Tarby knows how difficult it is to remove or replace the high stress bolts on the air-conditioning unit panel on the A-7 because the nose gear door gets in the way, opposite top. The canopy on the A-6 must be removed before the pilot's seat can be taken out, above. Canopy or seat design changes could provide the solution. It is a tight squeeze to check the DIFAR acquisition lights in the P-3C electronics bay, bottom left. A mirror system or higher panel would help. Before AT2 Richard Cabral can work on the UHF unit in the A-6, he must first remove the enunciator panel and then the fuel quantity indicator, bottom center. A portable A-6 radome strut must be brought from the maintenance shop for access to that area, bottom right. A built-in, light weight strut would save considerable time and energy, and still not be a weight factor.

The Naval Air Systems Command has a small, relatively new, human factors engineering group which to date has concentrated primarily on aircrew station design.

Hopefully the day will come when Naval Aviation has an integrated human factors engineering effort. The Navy is making some progress, even in the area of maintainability. Due to the combined efforts of the NavAir Human Factors Engineering Group, associated Navy laboratory personnel and contractor human factors engineering personnel, the maintainability of some of the newer naval aircraft, such as the S-3 and the F-14, will be far superior to that of some of the earlier aircraft.

Positive



Aircraft Control

An air controller at Fleet Air Control and Surveillance Facility, NAS North Island, monitors his radar to ensure military aircraft stay well clear of the restricted areas outlined on the screen.

By Cdr. J. T. Abercrombie
Positive Control Project Manager
ComNavAirPac

Photographs by PH1 C. J. Markowski

A term used in the Naval Air Force, Pacific Fleet community has become a household word—and a way of life—around hangars and ready rooms.

The term is Positive Control, an air traffic control system to help prevent midair collisions and enhance flight safety.

The Federal Aviation Administration (FAA) anticipates considerable aviation growth over the next ten years: general aviation (flying clubs, light aircraft, air taxi services, etc.) will nearly double from its present level of 126,000 aircraft; air carriers will show a 50 percent increase, with business jets increasing six-fold; military aviation should remain fairly constant or show a slight decline.

FAA conducted a comprehensive near-midair collision study in 1968 of over 2,200 incidents. Of those defined as hazardous, almost half involved military aircraft. In 1969 and 1970, there were approximately 1,500 reported near misses each year, and approximately 800 through August 1971.

In the past, the Navy has conducted most flights under visual flight rules (VFR). It was easier to file VFR. The opportunity existed for pilots to fly virtually anywhere they wished and do what they wanted to do which, in too many cases, resulted in hazardous exposure and needless aircraft accidents.

The Chief of Naval Operations, recognizing the requirement for tightening procedures, directed increased instrument flight rules (IFR) operations. Pilots, however, continued to procrastinate by hanging their hats on phrases such as "go IFR except where mission derogation is involved," or "IFR should be filed in all cases if mission permits."

Only 11 percent of Navy flights were conducted IFR in 1970 and less than 20 percent in the first half of 1971. Near misses continued, including incidents on the West Coast involving a 747 jetliner, a large squadron formation and an airliner, and many others. In June 1971, an F-4, on a VFR flight plan and flying with an inoperative transponder, collided with a commercial jetliner. This disaster brought to a climax the Navy's dramatic step toward complete positive control of its air operations.

CNO directed major commands to scrutinize the mission

and purpose of all flight operations to ensure that they were conducted in accordance with instrument flight rules. In response, ComNavAirPac convened a special study group to examine methods and make specific recommendations for maximizing positive control of NavAirPac flight operations. Involved were selected headquarters personnel, representatives from Fleet Air Commands, the Navy Regional Airspace Office, Western Region, Third Marine Air Wing, NavAirPac instrument readiness training squadrons, and local and regional FAA representatives.

The study indicated that, with proper planning and liaison, nearly all of NavAirPac flight operations could be conducted under positive control methods. A means of progressively implementing positive control was established and promulgated.

Positive control, as defined within NavAirPac, is operation within the air traffic control system in one or more of the following methods:

- Positive control area (PCA): PCA requires an FAA approved flight plan and an operating radar beacon in the aircraft as the "price of admission." In October 1971, the floor of the PCA was lowered to 18,000 feet over the continental United States. Long-range plans are to lower the PCA to 14,500 feet, and to 10,000 feet along the California coast.
- Instrument flight rules: IFR includes filing an IFR flight plan by a "canned" DD-175, a unit flight schedule, a ship's naval message air plan or by voice. Additionally, controlled departures and approaches are directed where published/available.
- Radar control: by a ground control approach (GCA) unit, radar air traffic control center (RATCC), ship, ground control intercept site, or fleet air control and surveillance facility.
- Tower control in airport traffic area: operation within an area up to and including 3,000 feet within a five-mile radius of the field under communications control of the tower.
- Within special use or other defined airspace: offshore warning areas and inland restricted areas/target complexes, air traffic control assigned airspace areas including aerobatic, air combat maneuvering, supersonic and familiarization areas.

Areas identified which required action included shore-based operations, aircraft carrier operations in both the eastern and mid-Pacific, aircraft equipment, primarily transponders, and transponder ground tests.

Programs for designating training areas for fixed-wing operations were implemented by ComFAirs and coordinated with FAA. The tempo of dialogue with FAA quickened appreciably as solutions to training problems were sought. Liaison between ComFAirs, carrier division commanders, ship and air station commanding officers and FAA was most productive with FAA endeavoring to satisfy NavAirPac requirements.

New letters of agreement between ComFAirs, air station C O.'s and FAA were negotiated, and standardized routes to and from target complexes and operating areas were established. Canned flight plans included routes to and from carrier offshore operating areas in the eastern and mid-Pacific. Exchange of FAA representatives and air wing pilots/liaison officers with carriers and air route traffic control centers was implemented on a continuing basis.

And finally, pilots were informed that the VFR philosophy in Naval Aviation had been overtaken by events, and that they could no longer avoid the transition to a controlled environment.

Problems still exist, however. Not all desired airspace has been obtained. The height of the California and Washington mountains, lowering of the PCA, and federal airways and other military service requirements have squeezed and confined operations. Area saturation by military aircraft increases the potential of a midair collision between military aircraft. Lack of an adequate number of FAA communication frequencies and controllers preclude discrete frequency assignment and individual aircraft control, making it necessary that the military assume responsibility for separation of aircraft.

Most general aviation operations are not under positive control. The small, light plane operation increases training area sanitation problems in that present regulations do not restrict the VFR general aviation pilot from transiting or operating within areas below 18,000 feet.

Federal airways are used at will by civil VFR traffic. Some light aircraft do not have radios and many more do not have transponders, nor do many of the pilots file flight plans as required by FAA regulations. Since these aircraft operate in the same altitude structure as helicopters and low level navigation flights, and within all airspace up to 18,000 feet VFR (the floor of PCA), military pilots must still rely on the "see and be seen" rule regardless of the type control being received or their assigned area of operation.

In an effort to make the aviation public more aware of what is being done, ComNavAirPac has established a pro-

LCdr. W. C. Ellis, NAS North Island, developed the go-no-go system which automatically tests IFF and SIF capabilities of aircraft as they taxi over it on the way to the runway.

gram to ensure that area civil aviation agencies are thoroughly informed of NavAirPac's mission, on the progress being made in implementing Navy positive control procedures, and on the goal of eliminating the midair collision potential.

Briefings, presentations and seminars include established sandblower (practice low altitude attack) routes, training areas, helicopter flight routes, GCA patterns and departure approach corridors on patterns. The public awareness program is directed toward flying services/rental agencies, flying clubs, air taxi services, FAA control agencies and crop dusters.

Problems with implementing positive control procedures for helicopters are unique. Aircraft equipment limitations (navigation and communications), aircraft performance, area weather patterns and terrain, and FAA control limitations (radar and communications) are but a few.

A more effective means of handling helicopters has been implemented. Helo flight routes have been standardized with maximum/minimum crossing altitudes at designated checkpoints similar to those utilized in the Washington, D.C., and Los Angeles areas. Also standardized were training areas and inflight procedures. These provide an interim form of control until FAA can provide complete air traffic control services.

A large percentage of attack squadron training flights (low level navigation) which are flown at a minimum of 200 feet above ground level or 1,500 feet when hooded, is outside the present FAA control envelope. Routes must necessarily include a VFR low level leg (high-low-high) outside radar coverage patterns of control agencies and well below FAA established IFR terrain avoidance criteria. The low level portion of these flights must be exempted from IFR/positive control, other than requiring canned routes and communications control by FAA agencies, until sanitized routes can be obtained.

In an effort to prevent launch of aircraft with inoperable transponders, special preflight test procedures and check stations were developed or designed with FAA/GCA facilities. The recently installed "go-no-go" system at NAS North Island has undergone a successful 60-day evaluation. As an aircraft approaches the test unit near the approach end of the runway, it taxies over a switch that triggers the set to interrogate the aircraft's IFF setting. If function is satisfactory, a light in the test set panel is illuminated green — go; if not satisfactory, then red — no go. As the aircraft continues taxiing, the test is automatically turned off. ComNavAirPac has recommended that similar test stations be installed at all naval air stations. (The cost of the system is minimal.)

Throughout the NavAirPac program, progress has been noteworthy. Three carrier operational readiness inspections and subsequent operational readiness evaluations have been conducted under positive control. A joint antisubmarine warfare exercise with a CVS, an Allied carrier, and Pacific Fleet patrol squadrons has been conducted under positive control guidelines.

Air wing and air group carrier qualifications are conducted on IFR stopover flight plans. Mainland to Hawaii en route flight operations and post-deployment air wing fly-offs are integrated into the oceanic control structure to avoid conflict with civil and military traffic transiting the international flight routes between California and Hawaii. Monthly reports indicate nearly 90 percent of all training sorties are conducted under complete positive control from launch through recovery.

The eyes of air controllers such as Chief D. G. Mitzel and PO2 G. R. Rains, NAS North Island, ensure positive control.

Surprisingly, training has not been derogated as many envisioned. Training syllabi have been revised to meet the challenge of a controlled environment. More time is being spent in planning and briefing required missions; thus pilots are becoming more professional. This professionalism and strict adherence to positive control procedures will save Navy lives and aircraft.

Naval Aviation can no longer afford to lean on crutches of operational necessity to avoid facing the problem of crowded air space. VFR is simply no longer adequate. The days of kicking the tire and lighting the fire are gone.

The continued aggressive professional approaches being taken by the fleet air commanders and strict adherence to established procedures by each Naval Aviator will soon make positive control of all naval air a reality.

ON PATROL

with the Fleet Air Wings

No Mistakes

VP-30 has logged 85,000 accident-free flight hours in the squadron's *Orions*. Lt. Rick Magalis, a squadron instructor pilot, was plane commander on the milestone flight, and Lt. Bill Clayton, an instructor under training, was copilot. Other crew members included AMCS Montie Foster, AWC David Wilson, ADJ1 Ronald Robertson and AX3 Charles Hudson.

VP-30 has not had a major aircraft accident in the P-3 since they began flying the aircraft in 1962.

The End

VP-23 ended a deployment to Sigonella, Sicily, with approximately 2,700 flight hours logged in antisubmarine warfare, surveillance and reconnaissance missions during its four month stay in the Mediterranean. Numerous operations were conducted with other Sixth Fleet and NATO units, including Exercise *National Week XII*.

A group of men from the guided missile frigate *Barney* visited the squadron during a special operation to get an idea of the ASW problem from the aviation viewpoint. They flew patrols with the combat aircrews and discussed means of improving surface/airborne on-station coordination.

VP-22 Shoots Up Pacific

Landing at an unfamiliar airfield in the Pacific is a thing of the past. VP-22 spent 16 days filming approaches and landings at Navy, Air Force and International airfields at Barbers Point, Hawaii; Agana, Guam; Cubi Point, Philippines; Hong Kong; U-Tapao, Thailand; Naha and Futema, Okinawa; and Iwakuni, Atsugi and Misawa, Japan.

Patrol plane commander, LCdr. Dick Wilson, five other officers and a full crew flew over 57 hours while making the films. Complete IFR, GCA, circular and missed approaches are now available on film which will be used to familiarize pilots with the hazards and obstructions characteristic of the various areas.

VP-22 is the first squadron at NAS Barbers Point to transition to the P-3B(D). Transition to the new ASW platform began last October when the first four crews began training. Squadron NFO's and AW's composed the first graduating class trained to use the new ASW sensor equipment. The flight phase was held at VP-31, NAS Moffett Field, Calif., where pilots gained experience flying the aircraft, sensor operators learned the inflight capabilities of the new equipment, and overall crew familiarization and coordination were completed.

He's in Distress!

A combined VP-31/48 crew conducting training one Thursday had a fuller day than they expected. While 350 miles off the West Coast, patrol plane commander LCdr. George Lloyd and VP-31 instructor pilot Lt. Dave Kanning spotted a 32-foot sailboat which fired a red flare.

Observers were immediately positioned to check out the sailboat during succeeding runs. It appeared there were four people on the boat waving vigorously as the aircraft made passes, but no more distress signs were displayed. As a precautionary measure, the Coast Guard in San Francisco was notified.

Off-station time had arrived, so Lt. Kanning informed another VP-48 crew in the area of what had been found, and recommended they check it out before leaving station.

The other crew, commanded by Commander M. E. Fladager, VP-48 executive officer, and Lt. Ken Bidlake, VP-31 flight instructor, proceeded to the reported position. They spotted the sailboat which fired a distress flare, and a message was sent to the Coast Guard confirming the boat was in trouble. Informed that a Coast Guard C-130 was en route, the P-3 crew feathered two engines for loiter and remained on station until relieved by the *Hercules*.

The sailboat, bound for San Francisco from Hawaii, had been the object of a Coast Guard search earlier in the week when faint radio distress signals were received by stations along the coast. It was believed at the time that the boat was farther north and a search had been conducted in that area. Mr. and Mrs. Ted Grant and their three children continued their voyage after the Coast Guard cutter *Rush* made emergency repairs to the sailboat and replaced diminished food and water supplies.

Meritorious Unit Commendation

VP-8 has been awarded the MUC for service from March 2 to July 17, 1970, and from October 25, 1970, to February 26, 1971, in the Atlantic and Mediterranean. In winning the award, VP-8 ". . . expertly fulfilled a myriad of diverse missions while at times operating simultaneously from as many as four widely dispersed bases." The award was presented by VAdm. Fred G. Bennett, Commander, Antisubmarine Warfare Forces, Atlantic Fleet.

Pelicans in National Week XII

VP-45 participated in *National Week XII* exercises in the Mediterranean while deployed to Rota, Spain. The *Pelicans* sent a number of crews and P-3A's to NAF Sigonella, Sicily, to augment VP-23. The exercise consisted of five days of round-the-clock ASW surveillance operations in close support of *Independence* and *Kennedy* and other Sixth Fleet units.

School Days

Ens. Philip W. Zitzelman prepares general psychology lesson, above. Students ponder Newton, Descartes and Leibniz, below. Ltjg. Edwin A. Platt teaches calculus, below right,

Terms such as pilot, sonobuoy and antisubmarine warfare are well known around a patrol squadron. VP-24 at NAS Patuxent River, Md., has an additional dialect which includes professor, algebra, psychology and junior college.

To the casual observer, these terms may sound out of place among men who operate the Navy's most sophisticated ASW aircraft, the computerized P-3C. To squadron personnel they are part of VP-24's new educational program designed to allow the officers and enlisted men a means of furthering their education.

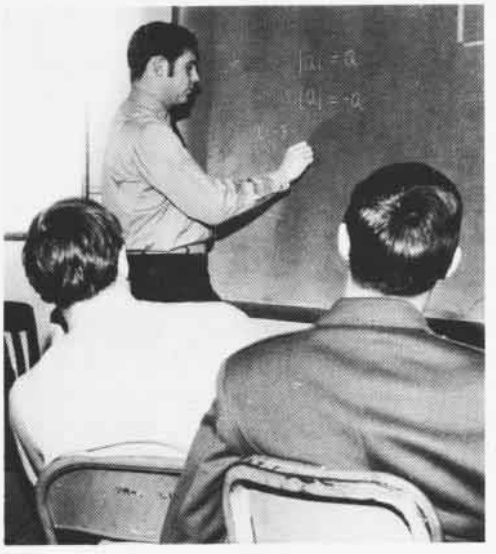
At VP-24, United States Armed Forces Institute correspondence course materials are provided to each student just as for home study. Instead of the individual pursuing the course alone, however, a qualified instructor teaches a group of students in a classroom. (The $10.00 registration fee required by USAFI for home study courses is not required for the group study.)

LCdr. W. C. Courtney, who initiated the program, had previously been involved in teaching a USAFI college physics course at another command. After arriving at VP-24, he felt that the group study could be expanded within a command to encompass several different courses. The squadron C.O., Commander G. L. Petri, enthusiastically endorsed the VP-24 junior college concept, and 22 percent of the squadron's personnel are now enrolled in the courses being offered.

As the program is squadron run, class schedules can be altered as necessary to make allowance for squadron operational commitments. In the past, squadron personnel participating in local off-duty educational opportunities missed many classes because of squadron requirements. The problem is minimized for students at VP-24. When the squadron is involved in major operations, the class schedule is changed or postponed appropriately so the squadron mission is met and students do not have to miss classes.

Several of VP-24's volunteer instructors have masters degrees. Both officer and enlisted instructors teach physics, oceanography, calculus, introduction to the slide rule and data processing, psychology and mechanical drawing. All courses presently being taught are at the college level, but provisions have been made to teach high school level courses as the need arises.

Every command has qualified instructors in various subject areas, and the junior college dialect could easily spread to other commands.



Cat

Known variously as *Catalina*, *Canso* and *Nomad*, the PBY was one of the U.S. Navy's most useful aircraft during WW II, with more produced than any other flying boat before or since. The first prototype of this long-lived seaplane, originally designated XP3Y-1, was ordered in 1933 and flew two years later. The *Catalina* featured a cantilevered parasol-mounted wing with retractable floats which became the wing tips in flight. The prototype established a new world seaplane distance record in 1935, flying from Norfolk to Coco Solo. The 825-hp engines of the XP3Y were replaced by 900-hp models in the PBY-1's ordered in 1935 with first deliveries to VP-11F in 1936.

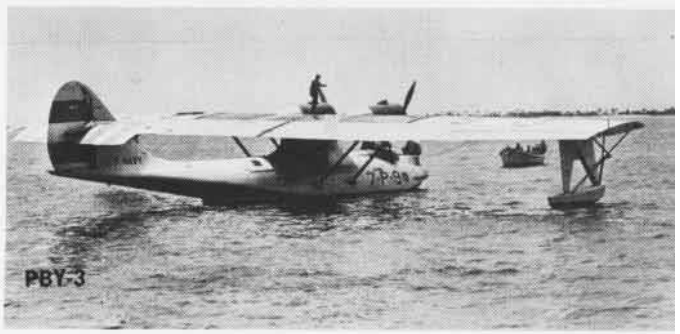
PBY-2's and -3's were ordered that same year and -4's in 1937. The last three copies of the PBY-4 came equipped with the now familiar waist-gunner blisters that were to mark all future versions. By mid-1938, 14 squadrons were flying PBY's. As WW II spread across Europe and then Asia, there were increased demands for a dependable long-range seaplane. Britain ordered PBY's for use in the RAF Coastal Command and named them *Catalinas*. The name stuck and was adopted in the U.S., Canada, Australia and New Zealand. The Free French, Dutch and Russians all procured PBY's. The USSR had first shown an interest in 1937 when it obtained civilian models for mail-cargo service and was licensed to build its own GST version.

In December 1939, the Navy ordered 200 PBY-5's mainly to bolster the Neutrality Patrol. First deliveries were made in September 1940. By the time the U.S. entered WW II, most VP units had -5's. The -5A amphibious version made its appearance in late 1939 and displayed much greater utility with little decline in performance. The *Catalina* saw its first wartime action in the English Channel with the RAF and soon achieved fame by locating the *Bismarck*.

In U.S. service, the PBY filled a variety of roles from ASW and reconnaissance to search and rescue. The Army Air Corps and Coast Guard also employed PBY's in various ways.

Canadian-built PB2B and PBV-1A versions, nicknamed *Cansos* in RCAF service, were produced in large numbers and the Naval Aircraft Factory also went into production with a PBN-1 *Nomad*.

Approximately 3,300 PBY types were produced during the war for the various services and Allies. At their peak employment, PBY's equipped 29 U.S. patrol squadrons. This number dropped rapidly toward war's end as more modern seaplanes and land-based patrol aircraft replaced them. But the *Catalina* survived and for several years was a familiar SAR plane at naval air stations around the country.

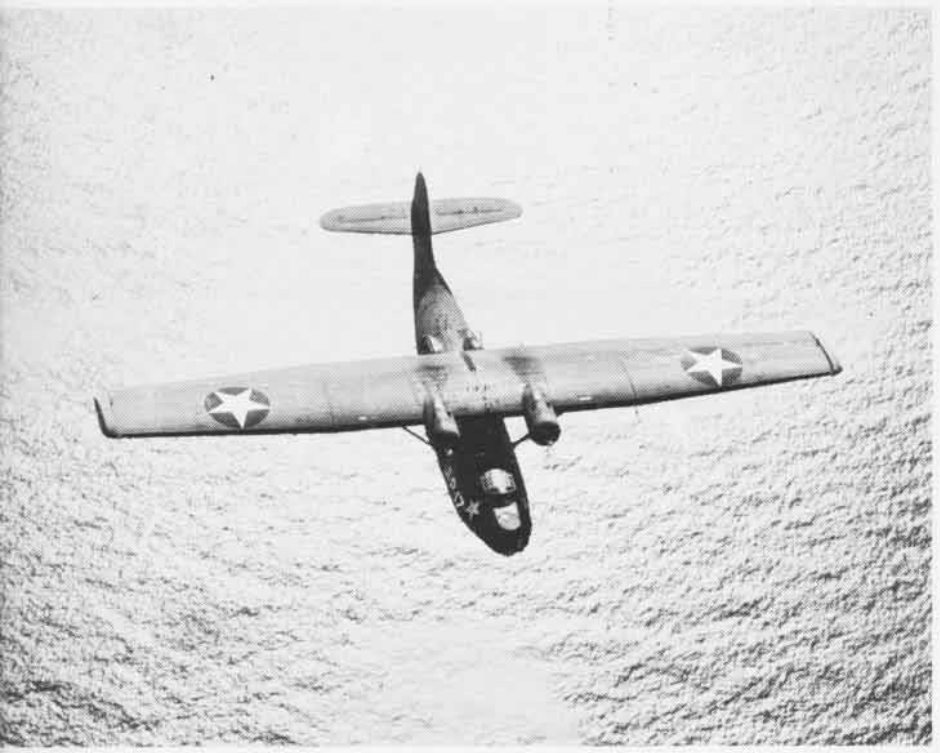


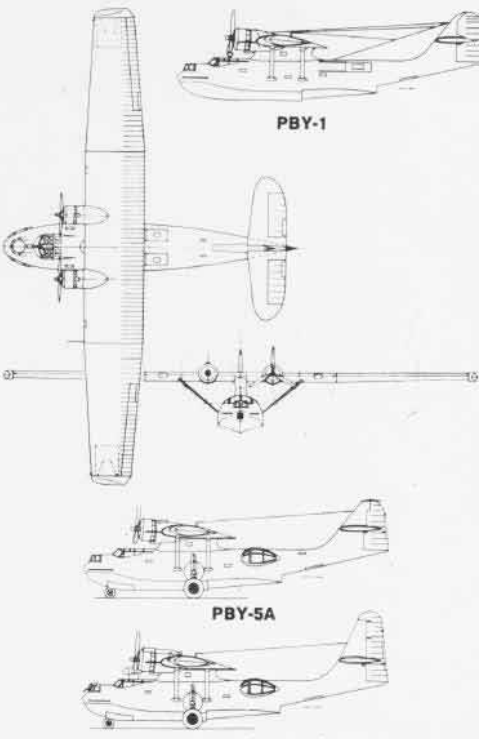
alina

Length		
PBY-1/2		63'6"
PBY-5/5A		63'10"
PBY-6A		62'11"
PBN-1		64'8"
Height		
PBY-1 thru 5		18'6"
PBY-5A		20'2"
PBN-1		21'3"
PBY-6A		22'4"
Wing span		
PBY-1 thru 5		104'0"
PBN-1		104'3"
Engine/horsepower		
PBY-1/2	R-1830-64	900 hp
PBY-3	R-1830-66	1,000 hp
PBY-4	R-1830-72	1,050 hp
PBY-5/5A/6A, PBN-1	R-1830-92	1,200 hp
Maximum speed		
PBY-1		175 mph
PBY-5		189 mph
PBY-5A		180 mph
PBN-1		186 mph
Range		
PBY-1		1,375 nm.
PBY-2		2,110 nm.
PBY-5		2,990 nm.
PBY-5A		2,350 nm.
PBN-1		2,590 nm.
Crew		8 or 9 in wartime

Armament

Up to 4,000 lbs. of bombs and/or depth charges on 4 wing stations and a mix of 4 or 5 .30 cal and .50 cal machine guns.





Beer Bottles,

Above, Black Cat crews relaxed during days, saved empties to drop on enemy at night. Opposite page: at top is a VP-52 flight (note peeling paint which covered national insignia); below, Cats crouch in high seas at Morotai Harbor. They teamed with PT boats on night forays.

Bombs and Battles

By Clarke Van Vleet
DCNO (Air Warfare) Historian

A search of the files of various WW II documentary and photo archives to produce this capsule review was generated by the increasing number of requests for information on the famous, but little narrated, Black Cats of WW II. Foremost among those interested is Captain William Scarborough, USN (Ret.), an ex-Catalina pilot of WW II and now Grumman Spacecraft Safety Program Director, whose free-lance research (NANews, January 1972, p. 40) and articles on aircraft for the American Aviation Historical Journal have contributed greatly to the posterity of Naval Aviation. The Nimitz Museum in Texas has been another seeking Black Cat information and insignia. Research by Op-05D2 through the labyrinth of WW II insignia documentation filed at GSA's National Records Center in Suitland, Md., a 12-hour "search-and-seize mission" at the National Archives' photo branch, and a finecombing of the 500 cubic feet of files held by 05D2 laid the foundation for this short piece, which really does not even begin to "scratch" the total exploits of the unsung Black Cats. However, we hope it satisfies some of the mounting curiosity, because like so many, we, too, dig them Cats!

During WW II when the U.S. and Japan were struggling for control of the Solomon Islands in the South Pacific, the Japanese used the cover of night to reinforce and supply their garrisons throughout the island chain. Barge and small boat traffic by night posed a problem for the U.S. forces until the advent of airborne radar made it possible to intercept the nocturnal shipping.

For this type operation, the PBY *Catalina* proved to be particularly well suited. During the day, the plane was quite vulnerable to enemy fighter and AA attack. (There was more truth than fiction in the story of the PBY pilot who radioed: "Sighted enemy carrier. Please notify next of kin.") But at night its slow cruising speed of 100 mph became an asset. Masked by night, the PBY could safely prowl in search of the Japanese.

The first *Catalinas* equipped for night operations arrived at Guadalcanal in December 1942. They were painted flat black, paint #AM604 (presently #37038). They had been christened *Black Cats* by Commander C. E. Coe, who was on the staff of ComAirSoPac. Designated PBY-5A's, they were amphibious with retractable tricycle undercarriages. They were powered by two 1,200-hp Pratt & Whitney twin *Wasp* engines and had a wing span of 104 feet and a wing area of 1,400 feet. They weighed over 20,000 pounds empty and could carry approximately 15,000 pounds. Armament consisted of .30 calibers in the nose, .50's in the two blisters, and a .30 in the tunnel hatch. Each carried a ton of bombs, numerous fragmentation bombs, many illuminating flares and some reported, "a generous supply of empty beer bottles" (more of that anon).

The first squadron to arrive in the Solomons with the nocturnal feline was Patrol Squadron Twelve (VP-12). On November 19, 1942, the squadron began deploying from Kaneohe to Nandi, Fiji Islands, and from there forward to Espiritu Santo from where a one-plane detachment was sent to Guadalcanal on December 15. The original *Black Catter*, Commander Clarence Taff, was in charge. Six days later, four more *Cats* arrived and in March 1943 he got the sixth. In that three-and-a-half-month period, VP-12 pioneered 236 missions or flights, totaling 1,660 hours, the majority by night. Two planes were lost through operations, one hitting the water during a night torpedo run, the other during a night forced landing at sea. No planes were lost in combat and there were no personnel losses.

WW II Naval Historian Rear Admiral Samuel Morison recounts that "takeoff time was generally scheduled for 2230, which was also the hour for *Washing Machine Charlie* to appear.

As twilight fades to dusk, above, VP-34 Black Cat crew heads for plane they dubbed Fly-by-Night to prep for a night prowl. Right, Cats' "den" at Pacific base in 1943. One has yet to get its black coat; another creeps toward the sea; hull of third may have been cannibalized.

Pilots and crews would tumble into foxholes when enemy bombs were dropped, man their planes between those bombing runs, take off over the coconut palms, blinded by bright field lights, and be well out over the water before acquiring night vision. Once safely airborne, the principal antagonist became weather. Flying in a turbulent weather front all night was only routine; thunderheads butted the *Cats* mercilessly and often the ghostly fires of Saint Elmo danced up and down the wings and fuselage. Only radar saved the planes from becoming lost in the sightless void. Then came breathless moments over the target, a fast glide to drop a torpedo or a stick of bombs on a Japanese ship, or a run over a hostile airfield.

"In late December, the *Cats* began to spot for night surface bombardments. These missions were highly successful, not only for making gunfire more accurate but for good feeling between airmen and bluejackets. Previously there had been occasions when *Cats* gave destroyer crews the jitters by their close-to inspections, and sometimes the destroyers, unable to identify their inquisitors, opened up with antiaircraft shells. Now they started working together as a team.

"*Cats* played Santa to the Japanese at Buin on Christmas Eve [1942] with a sockful of torpedoes. The holiday

spirit was carried over to New Year's Eve when Lt. Norman Pederson, USNR, over Munda, sounded his plane's crew-warning horn exactly at midnight and released a bomb, a flare and two dozen empty beer bottles."

Another report notes that, though never consumed on missions, beer served a double purpose: a pleasant interlude after tiring all-night missions, and the empty bottles dropped over Japanese encampments gave out a weird banshee-like screech to harass an enemy already overtired.

VP-12 was relieved on Guadalcanal by VP-54 in March 1943. Emulating Cdr. Taff's original *Black Cats*, this squadron spent many a night dropping bombs on Munda and Vila in the softening-up process of those Japanese airstrips. During its tour, 52 crewmen and seamen from other units were rescued, including 27 pilots. One night, C.O. Commander Carl Schoenweiss and Lt. Erhard rescued one *Corsair* and eight *Dauntless* pilots off Rennell Island.

Relieving VP-54 in December 1943, VP-81 later moved to Munda and then on to Bougainville where it based until August 1944. Meanwhile, as the U.S. moved up the island chain toward Japan, Fleet Air Wing 17 was organized in September 1943 to operate in the New Guinea area. Its initial squadrons — VP's 11, 52 and 101 — refined and further developed the night techniques of the first *Black Cats*.

By the end of 1943, operational techniques were generally well established. An average of 3.2 planes took off on missions nightly, each with a standard load of 1,450 gallons of fuel, two 1,000-lb. and two 500-lb. general purpose bombs, each with a Mark 113 tail fuse set for four to five-second delay and a Mark 103 nose fuse set for a delay of 1/10 second. The plane was stripped of tunnel gun and tail armor. The takeoff, without seas or wind, averaged from 1½ to 2 minutes.

Pilots were never told that they must attack from low altitudes, although such attacks could be made in comparative safety. Generally, the visibility, even on bright moonlight nights, did not preclude the low attacks. It was vital, however, that the approach at such times be up-moon. One highly successful *Black Cat* pilot regarded the up-moon attack far safer than attacks on dark nights. It was regarded as extremely dangerous to execute an attack when the moon was overhead.

The approach on target consisted of a glide from 1,000 feet or more at altitude down to between 75 and 500 feet at the dropping point. Bombs were normally released by intervalometers spaced at 60 to 75 feet. Bombsights were not generally used. The intervalometer spaced at 200 feet of altitude virtually guaranteed one or more hits as long as the run was roughly across the center of a ship and from broad on the bow, on the quarter or stern.

The enemy had difficulty seeing the *Black Cats* soon enough, during the approach, to aim and commence firing prior to the drop. Normally he withheld his fire until the plane could be sighted visually, presumably to avoid blinding his own gunners with the flashes. The silence of the *Cat's* glide deceived the Japanese until the last moment. Moreover, four to six flares were frequently dropped to cover the getaway during the four to five seconds of delay in bomb fuse action in the low glide attacks.

During November and December 1943, VP-52, headed by Commander Harold Sommer, operated from a base at Namoai Bay, New Guinea. Masthead bombing in the dead of night was a vital factor against Japanese shipping in the Bismarck Sea. On the night of November 24, Lt. William Lahodney glided to 150 feet before releasing bombs on an enemy cruiser near Rabaul. He received the Navy Cross for that action. Lahodney was also instrumental in having four forward-firing .50 caliber guns fixed in the bow of his plane, an installation which was later used in other squadrons.

By New Year's Eve 1943, after two and a half months in the Guinea area, VP-52 night attacks had damaged two cruisers, two subs and three destroyers and had sunk 10,000 tons of merchant shipping with another 24,000 tons damaged.

In addition to scratch by night, special missions were a part of the *Black Cats'* trade. For example, VP-11 relieved VP-101 under direct control of the Fifth U.S. Army Bomber Command at Port Moresby. It flew 24 missions deep into central New Guinea on the Sepik River behind enemy lines to supply advanced Allied scouting patrols and to evacuate over 200 Australians when enemy pressure made their position untenable during December 1943. VP-52 took over in January, racking up 94 hours of night food-dropping missions to coastwatchers and castaways, 138 hours on night convoy coverage and 162 on transport, survey and other special missions.

Although there were other squadrons that were considered *Black Cats*, these six were the originals that refined and extended the night techniques, with VP-12 the pioneer. Of the six, three were Presidential Unit Citation winners — VP's 11, 12 and 52. The term *Black Cat* was becoming so popular and proliferated that Admiral Fitch issued the following:

Sniffing out enemy, Black Cats of VP-81 brief at Bougainville, far left. With his .50 cal on the ready, a gunner in plane's blister searches the sky for the enemy, left.

COMMANDER AIRCRAFT, SOUTH PACIFIC FORCE
PACIFIC FLEET

April 10, 1943.

From: Commander Aircraft, South Pacific Force.
To : Commander, Patrol Squadron TWELVE.

Subject: Original Black Cat Squadron.

1. This is to certify for the edification of posterity that the squadron which initially developed and conducted the highly effective night tactics peculiar to "Black Cats" is Patrol Squadron TWELVE. The name "Black Cat" was originated by this command about December 14, 1942, as a term descriptive of the aircraft of Patrol Squadron TWELVE which were specially prepared for these operations.

2. While many other squadrons will follow in the footsteps of Patrol Squadron TWELVE and be known as "Black Cats", the honor of being the original Black Cat Squadron definitely belongs to Patrol Squadron TWELVE.

AUBREY W. FITCH.

Very few *Black Cat* squadrons adopted feline-type insignia; most retained their original emblems although they were not always displayed on the aircraft. VP-12 and VP-52, for example, retained the famous *Argus* and *Lumbering Elephant* emblems, respectively. However, much as fighter units stenciled "kills" on their planes and bombers chalked on miniature bombs for their missions, some *Black Cat* crews painted a basic feline symbol on their planes to represent their first mission. The symbol was later embellished with eyes for the second mission, teeth or whiskers for the third, and on to "anatomical insignia of a more personal nature" for succeeding missions. Practiced more widely was the naming of planes by their crews. Such names as *Black Mac, Night Raider, Alley Cat One Time, We Get Ours By Night, Pugnacious Puss* were often painted on the aircraft. So were the famous *Black Cats.*

Adak SAR

ON CALL

By Lt. Stephen R. Arends

Twelve hundred miles west of Anchorage, Alaska, in the Aleutian Islands, lies the island of Adak. In this relatively unpopulated part of the world, 5,000 military men and their dependents make up the entire population of the state's fifth largest city, Adak.

Adak has few neighbors; only a few other military bases and native Aleut villages are scattered along the chain.

But the islanders are only a small portion of the people that are served by the Search and Rescue (SAR) Unit of Naval Station Adak. Through the unit's operating area pass all the ships and aircraft using the Great Circle Route between the United States and the Far East. In these waters, too, fishing fleets from all over the world lay their lines and nets to catch king crab, salmon and halibut. All are the responsibility of the Adak SAR unit which coordinates and controls search and rescue operations in that portion of the Alaska Command that reaches halfway along the Aleutians to the coast of Russia — over 1,300,000 square miles of the Bering Sea and the North Pacific.

At the SAR center in the station's operations building, any message or distress call, day or night, must be evaluated and an immediate decision made as to how best to help those in distress.

An aircraft lost and overdue on a position report may require the assistance of the Adak direction finding site. An emergency medical evacuation by helicopter or fixed-wing aircraft may save the life of a person on land or at sea. A sinking ship will need the assistance of the deployed fleet tug, the station's tugs and the Coast Guard cutter. These types of emergencies are common occurrences for the unit.

Sportsmen, pilots and ship crews know the unforgiving weather of the Aleutians. Williwaws — sudden, violent gale winds — rain and snow catch even the most carefully prepared without adequate shelter, food and dry clothing.

SAR pilots have teamed with the Adak Sportman's Club and provided emergency shelters to protect the hunters, fishermen and hikers on Adak. All sportsmen are required to check out with the naval station officer of the day when leaving the immediate vi-

SAR UH-2C prepares to hook-up and lift an emergency shelter, one of several distributed throughout Adak for the benefit of sportsmen.

cinity of the station. When they fail to return at the designated time, the SAR office must begin a search using a UH-2C *Seasprite*, Marine SAR ground teams or both.

Hundreds of people owe their lives to the men of the Adak SAR. They include a Russian fisherman who had to be evacuated from his ship to Adak for major surgery which saved his life; an Aleut child evacuated from Atka by the helo after the child suffered a broken arm in a fall; a seriously ill woman from an Estonian fishing vessel who had to be evacuated by tug; and 107 Japanese crewmen of a merchant vessel which burned and sank 200 miles from Adak.

Successful rescues don't just happen. Training exercises are conducted daily to ensure that every rescue is safe and expedient. Time is of major importance since exposure and frostbite can cause permanent damage or death. In the sea surrounding Adak, a person's chance of survival is limited to only 10 or 15 minutes because the water temperature is a frigid 38 degrees all year.

All helicopter pilots and rescue aircrewmen must periodically qualify in open-sea rescue. This involves donning a diver's wet suit that all pilots and crewmen wear for overwater training flights, and then performing certain maneuvers in the 38-degree water. After an hour, all realize the importance of the wet suit.

Rescue aircrewmen also train in the use of the medical "body bag." (Since exposure to the wind and water can drop a person's body temperature to a dangerously low level, an enclosed body bag will contain the survivor's own heat.)

Periodic training exercises are also performed with Coast Guard cutters; shipboard landing and extended search patterns are practiced while the cutters are underway.

Fire-fighting training exercises are conducted with a dry powder airlift unit carried beneath the UH-2C's.

Besides actual search and rescue missions, the helicopter pilots perform a variety of utility missions with the UH-2C's.

When foul weather prevents the maintenance crews from reaching the navigation buoys and obstruction lights in the harbor, the crew is flown in by the *Seasprite*.

Survival shelters are transported across the impassible tundra and mountains by helicopter.

When the approach lights for the runways at Adak need servicing and the boats can't reach them because of weather, a helicopter hoists the maintenance men down to the pilings so they can keep the lights working.

When the operating situation demands an immediate transfer of men or material to Navy ships in the area, a UH-2C *Seasprite* obliges.

Even Santa Claus comes to Adak by helicopter.

The UH-2C has hauled everything, including injured caribou.

Severe turbulence, mountain flying and icing conditions almost the entire year demand the most from the helicopters and men, but their motto remains the same: "You call . . . We haul . . . You all."

Flight surgeon Lt. "Skip" Davis explains function of the medical body bag to the "victim," above. Below, wet and poopy suits are tested periodically in frigid water of the Bering Sea.

THE SELECTED AIR RESERVE

No More Training

Training has gone out of the Naval and Marine Corps Air Reserve — not the physical part, but from the name of certain Reserve Air commands.

In March, the word "Training" was deleted from command and activity titles. The Chief of Naval Air Reserve Training is now Commander, Naval Air Reserve and reports directly to the Chief of Naval Operations. He retains his additional duty as Commander, Naval Air Reserve Force. Naval Air Reserve Training Units and Detachments are now Naval Air Reserve Units and Naval Air Reserve Detachments.

Mission statements, delegation of command, support and area coordination responsibilities for the redesignated shore activities remain as assigned.

The changes are reflected in the new insignia above.

New Commander

Rear Admiral James D. Ramage assumed duties as Commander, Naval Air Reserve April 5 in a change-of-command ceremony at NAS Glenview, Ill.

Adm. Ramage, previously Commander, Carrier Division Seven, is an outspoken proponent of a strong and ready Naval Air Reserve. Among his first priorities in his new assignment are establishing a policy of promoting national recognition of the needs of the Naval Air Reserve, pledging a determined fight for improved aircraft, materials and increased benefits to Reservists, and continuing to maintain the Naval Air Reserve as a first line element in the national defense structure.

Busy Weekend

Seven detachments from CVWR-20 squadrons recently completed the first in a series of drill weekend operations at NAS Cecil Field, Fla.

The air wing launched 19-plane Alpha strike formations each morning in simulated combat assaults on the Pinecastle Bombing Range in central Florida. The exercise's objective was to maintain the wing's proficiency between active duty for training periods. It was made more realistic by the use of live ordnance on targets in nearby practice bombing ranges.

Detachment personnel from the squadrons staging from Cecil Field included about 40 officer and 100 enlisted Air Reservists. Aircraft flown included *Skyhawks, Crusaders, Tracers* and *Skywarriors.* Special airlifts of support personnel were flown by Naval Air Reserve transport squadrons.

One Hundred Percent

The Ralph Echavarry family of Spring Valley, Calif., became all-Navy recently when the last of three sons was sworn into the Naval Reserve at the U.S. Naval Training Center in San Diego, California.

AD1 Ralph Echavarry started the Navy kick in 1951 when he joined the Reserves at NAS New York. Four years later, he reported for active duty there and has been a full time sailor ever since. The eldest son, Ralph, Jr., is serving with a selected Air Reserve patrol squadron at NAS South Weymouth, Mass. Dennis is a crewman aboard the destroyer escort *Shields* where he will soon be joined by the youngest Echavarry, Gerald.

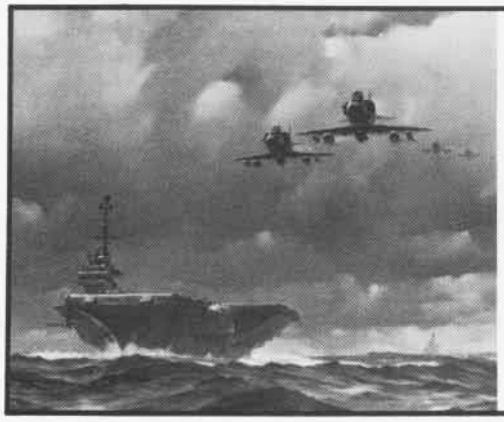
The fact that AD1 Echavarry has three sons in the Navy is no surprise to those who know him — he is a Naval Air Reserve recruiter.

Order of the Sacred Treasure

Captain James M. Leib, plans officer for Commander, Naval Air Reserve, has been awarded the Third Class of the Order of the Sacred Treasurer by the Japanese government for exceptionally meritorious service to that country.

In a citation from Prime Minister Eisako Sato, Capt. Leib was credited with being responsible for supervising, coordinating detailed planning and executing antisubmarine warfare operations while on the staff of Commander, U. S. Naval Forces, Japan.

Formation of aircraft from CVWR-20 returns from simulated combat mission in central Florida.



at Sea with the Carriers

PACIFIC FLEET

Coral Sea (CVA–43)

During a change of command aboard this ship in March, Rear Admiral Howard E. Greer succeeded Rear Admiral James Ferris as Commander Carrier Division Three. RAdm. Ferris has assumed duty at Pensacola, Fla., as Chief, Naval Air Training. RAdm. Greer assumed command of CarDiv-3 after serving as Commander Naval Air Reserve Force/Chief of Naval Air Reserve Training since December 1969.

Two pilots recently downed their first enemy aircraft, a MiG 17, while operating from CVA-43. The pilot, Lt. Garry Weigand, and his RIO, Ltjg. William Freckelton, were flying an F-4 *Phantom* near Quan Lang airfield, 150 miles south of Hanoi, when contact was made with the enemy aircraft.

The encounter began in the afternoon when another *Coral Sea*-based F-4 first spotted the MiG. Serving as decoy and just out of range, the first *Phantom* allowed Lt. Weigand to maneuver his plane into position behind the three planes in "a classic textbook encounter."

The MiG, after being hit with a *Sidewinder*, exploded and crashed into the jungle. The attack, from beginning to end, lasted only three minutes.

Hancock (CVA–19)

It has always been a practice for squadrons to have a patch, a caricature or a name painted on the side of their aircraft, and *Hancock* squadrons are no exception. The A-4 *Skyhawk*, flown by Commander Ramsay Lawson, C.O., has its name painted on the side—and has a story to go with it.

The aircraft is named *Lady Jessie* after Mrs. Jessie Beck. According to the pilots of VA-164, Mrs. Beck and her husband, the owners of a hotel and casino in Reno, Nev., adopted a young lad named Dick Perry who happened into their establishment several years ago. He subsequently became a dealer in the casino. Jessie and her husband put Dick through college and, following graduation, he joined the Navy and went to flight training. After getting his wings, he joined VA-163, sister squadron of 164.

Dick often received CARE packages from Jessie and, because of their size, he would share them with fellow pilots. The squadron then adopted Jessie, and the commanding officer of VA-163 named his aircraft in honor of Mrs. Beck. Between deployments, the squadron was often invited as Jessie's guests at the hotel.

Tragedy struck when Dick was killed in Vietnam during *Oriskany*'s 1967 WestPac cruise. When VA-163 was decommissioned soon after that cruise, the pilots of VA-164 named their leading jet in honor of Mrs. Beck and she "adopted" the sister squadron.

Lt. Tom Follis, VA-164's public affairs officer, says the pilots receive a CARE package every so often from Jessie and they keep her informed via family-grams and letters as to how the squadron is doing.

ATLANTIC FLEET

Independence (CVA–62)

Independence ended a six-month Mediterranean deployment when she returned to Pier 12 at Norfolk.

While deployed, the ship steamed over 37,500 miles, taking part in NATO operations with ships and aircraft from seven allied countries. More than 129,000 hours of flight time were logged, with 51 pilots making over 100 landings each during the cruise.

Before entering the Med, she crossed the North Atlantic and went above the Arctic Circle to participate in exercises *Royal Knight* and *Magic Sword* in support of allied naval forces in northern Europe.

Royal Knight, the longest and most complex, involving units of the United States, the United Kingdom, the Netherlands, the Federal Republic of Germany and Norway, opened the cruise with a major test of NATO carrier strike forces.

"These exercises demonstrated the flexibility of the carrier fleet," said Rear Admiral William D. Houser, ComCarDiv-2. "We provided air power in a portion of the globe where the United States does not have airfields. Then we moved into the Mediterranean in 48 hours, an example of our mobility."

A highlight of the cruise was a ship's squadron crossdecking with the British carrier, HMS *Ark Royal*. On two separate occasions, *Independence* fighter pilots negotiated the smaller flight deck of *Ark Royal*, while pilots from the Royal Navy squadron landed their F-4K's aboard *Independence*.

In two other major exercises, *National Week XI* and *XII*, U.S. Sixth Fleet preparedness was emphasized. In contrast to the other ten exercises which involved a total of 16 allied combatant ships and submarines in NATO-type operations, the *National Week* exercises were designed to test only American sea forces.

Commander Jim Snyder, CAW-6, meets Mimmo, a five-year-old boy sponsored by the wing.

Guam (LPH–9)

"When the tower radioed and asked me how to spell my name, I thought I'd gone and put a dent in their flight deck, or even worse." But Lt. J. R. Foust's apprehensions proved unfounded. The HS-15 pilot had, in fact, just guided his SH-3G *Sea King* to *Guam*'s 31,000th landing, becoming the first HS-15 pilot to join the ship's select One Thousand Club.

The milestone landing took place off the Virginia Capes as *Guam* was conducting Interim Sea Control Ship operational tests and project evaluations. HS-15 and VMA-513 are participating in the on-going series of evaluations aimed at providing the Navy with additional operational experience in formulating the design and concept of the sea control ship (see page 34).

Franklin D. Roosevelt (CVA–42)

More than a year ago, a young Neapolitan boy met a group of CVW-6 officers from *FDR* when the carrier was in Naples on a routine visit.

The meeting took place when some of the wing officers and their wives visited *Casa Materna* in Portici, a suburb of Naples. The *Casa* is a Protestant home for children of families who cannot afford to provide for them properly, either because of unemployment or sickness.

This spring, Domenico Scognamigie — nicknamed Mimmo — met again with some of his old friends from the wing and made some new ones when the ship returned to Naples.

While *Roosevelt* was anchored in the Bay of Naples, CVW-6 officers hosted the children of *Casa Materna*. The children inspected the ship's aircraft, had lunch and watched demonstrations of survival equipment. They also received packets of toilet articles, table tennis sets and soccer balls.

All this is just one aspect of the relationship between five-year-old Mimmo and the air wing officers. As a result of their first meeting, over $350 was donated in Mimmo's behalf. A collection was made to provide for his support for the coming year.

John F. Kennedy (CVA–67)

An emergency landing made during VA-46's Mediterranean deployment has earned Lt. Charles E. Brown the praise of two admirals and his fellow pilots around the Navy.

The emergency began during a flight off *JFK* in February when the throttle of Lt. Brown's A-7B *Corsair* stuck at nearly full power.

It ended at Souda Bay, Crete, with a landing which many pilots claim would have been difficult under optimum circumstances.

In between launch and touchdown, Brown's plane lost one of its two hydraulic power systems, its radar altimeter and its TACAN.

Added to that, Souda Bay's search radar and approach radar were inoperative, a critical factor because of the mountainous terrain.

A zoom climb en route to Souda Bay slowed the *Corsair* enough for Brown to safely extend the landing gear and flaps.

Using his wingman's TACAN for a section landing, Brown descended into weather with a 600-foot overcast and a ceiling of 10,000 feet. Breaking out underneath, Brown encountered light rain and patchy fog, limiting his vision to a mile and a half.

Calculating that the A-7B would slow to the desired landing speed of about 130 knots at touchdown, Brown shut down the plane's single engine at an indicated air speed of 255 knots and at a mile and a half short of the runway.

Utilizing the aircraft's external power package to provide emergency electrical and hydraulic power, Brown made a successful landing.

Vice Admiral Robert L. Townsend, Commander Naval Air Force, Atlantic Fleet, applauded Brown for what he described as "fine airmanship and professionalism."

"The difficulties encountered and overcome by your display of professionalism should serve as a benchmark for all Naval Aviators to emulate," Rear Admiral Lawrence R. Geis, ComFAir Jacksonville told Brown.

America (CVA–66)

Captain Burton Shepherd relieved Captain Thomas B. Russell, Jr., as commanding officer of *America* at a recent ceremony at the Norfolk Naval Station. The new C.O. reported to the ship from duty as the executive assistant to the Chief of Naval Operations in Washington, D.C.

Recipients of the seventh Catherine T. McDonald Award were CWO Donald Turner, the ship's electronic warfare officer, and DKCS Gordon Sims. Presenting the award was Mrs. Donald D. Engen, wife of Rear Admiral Engen, ComCarDiv-4.

CWO Turner and Chief Sims were selected by their shipmates as the officer and enlisted man who, during the preceding year, contributed the most to the morale, operating efficiency and material readiness of *America*.

The Catherine T. McDonald Award was established in 1964 when Mrs. David L. McDonald, wife of the then Chief of Naval Operations, christened the ship in Newport News, Va. Each year on the anniversary of this event, an award named in honor of the sponsor is presented to a deserving officer and enlisted man of *America's* crew and their names are engraved on a commemorative plaque.

In addition to the Catherine T. McDonald Award, 50 other medals or letters of commendation were presented to ship's personnel for meritorious service during the past year.

America, commanded by Captain Thomas B. Russell, Jr., and homeported at Norfolk, Va., is currently undergoing repairs and maintenance at the Norfolk Naval Shipyard.

Interim Sea Control

"Stand by for vertical takeoff aft," the ship's 5 MC blares.

Immediately, flight deck crewmen, plane handlers and pilots prepare to launch the Marines' AV-8A vertical takeoff or landing aircraft in a continuing evaluation of the Interim Sea Control Ship (ISCS).

This concept envisions use of both helicopters and VSTOL aircraft from a small austere ship. Aircraft presently engaged in the evaluation are SH-3G helicopters and the AV-8A's.

AV-8A participation in the evaluation is being provided to assist in determining the compatibility of operating both VSTOL aircraft and helicopters from a small flight deck.

Captain Jackson A. Stockton, Commander, Operational Test and Evaluation Force's special assistant for the sea control ship, explains that the AV-8A, the ASW helo and the ISCS are being evaluated on more than just operational abilities.

"We must also evaluate the concept in the full spectrum of threats — in the air, against both missile and torpedo firing submarines and surface ships — before our appraisal is complete," he says.

"*Guam* was selected for the evaluation because of its similarity to the conceptual sea control ship. She has been strictly an amphibious assault ship in the past, with no experience in antisubmarine warfare or in the handling of jet aircraft."

Evaluation of the ISCS concept began in January with the members of the various groups training to weld their individual professional talents into a unique team. It is expected that this evaluation of the men and machines will continue through June 1973.

Guam's crew, Helicopter Antisubmarine Warfare Squadron 15 (HS-15) and Marine Attack Squadron 513 (VMA-513) are new to each other and to the concept.

"Thus," continues Stockton, "we have several dissimilar units working together to investigate a new coordinated capability.

"To date, we have found that the VSTOL aircraft is compatible, in its simplest form, with helicopter operations and the multiple command and control problems — ASW, AEW and anti-snooper, anti-surface warfare — which are still being developed. The training-learning process is proceeding rapidly. We are very satisfied."

During the first two months of training, 18 pilots from VMA-513 were qualified in deck landings and takeoffs from *Guam*.

"From these operations," says Maj. Jacob E. Iles, VMA-513 operations officer, "we also are gaining further experience for our own amphibious operations capabilities and role."

Capt. Stockton is pleased with the initial successes of the first at-sea periods, but says "there is still much to learn."

In addition to the pilot day-landing

Ship

qualifications conducted in January and February, flight deck operation procedures were honed. Aircraft number and mix were examined, as well as safety limits for flight deck crewmen during landings and takeoffs.

Because the AV-8A is a new generation aircraft, it has been found that not all the signals and procedures used to launch and recover conventional aircraft and helicopters can be applied to it. As the tests by the operational test and evaluation force progress, safe and compatible procedures are being developed.

According to Capt. Stockton, the standard flight deck equipment aboard *Guam* is generally satisfactory for AV-8A operations with only a few minor alterations.

For example, because of the different AV-8A jet blast pattern, flight deck crewmen use long poles to place the chocks around the wheels. This provides greater safety for the personnel working near the aircraft when

Story and Photos by
PH1 Claude V. Sneed

YEAR OF THE CARRIER

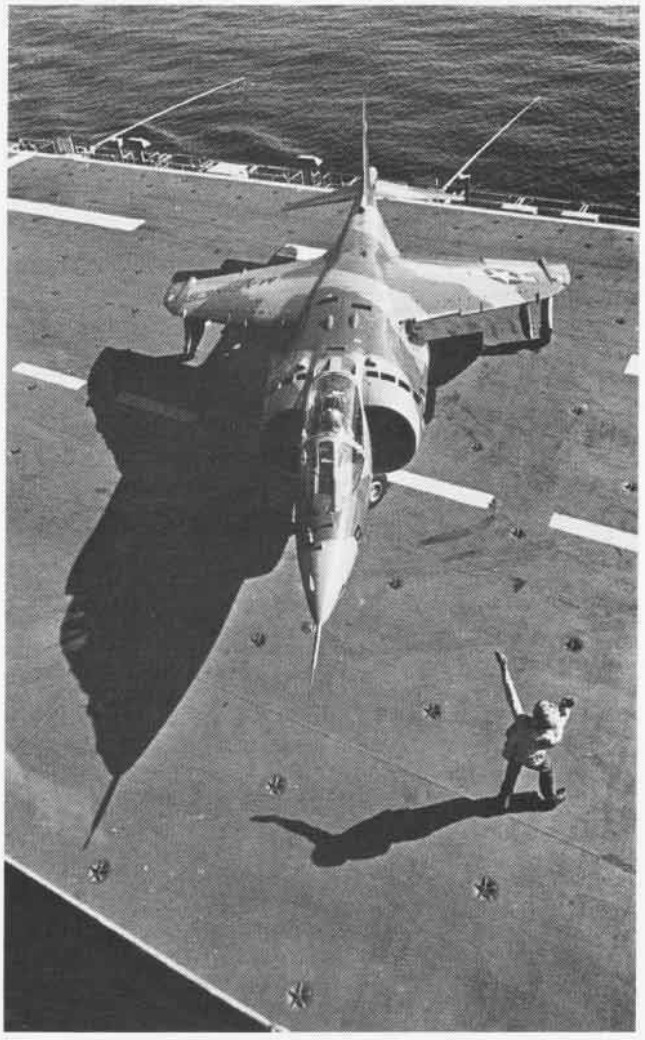
The evaluation results of the Interim Sea Control Ship concept were much brighter than the dull gray days in which the personnel of Guam (LPH-9), HS-15 and VMA-513 worked, left. Harrier lands on Guam's deck, right.

the engine is running.

In February, operational capability testing of the sea control ship included AV-8A bow and cross axial landings. Capt. Stockton explains, "If we can launch and recover aircraft without turning the ship into the wind, time and movement of the ship are saved. We can keep our formation intact and our speed constant because the sea control ship will not have to maneuver to regain its position."

From April through August, the ISCS team is expected to complete the compatibility trials and continue preparations for follow-on tactical development. Also scheduled are initial night flying operations for the AV-8A's, testing and training in ASW for the SH-3G's, and airborne early warning training. The latter includes AEW aircraft controlling the AV-8A's and the helicopters.

Shipboard control of airborne intercepts also will continue to be evaluated in an effort to achieve a level of training sufficient to establish further tactical testing.



Maj. A. W. (Bud) Hall, USAF, waits his turn to launch from Guam, left. His AV-8A is taxied to the launch area, right. Maj. Hall lands his AV-8A aft, bottom left. Guam flight deck crewmen practice in a crash drill, below. Refueling crews are kept busy during the evaluation, bottom right.

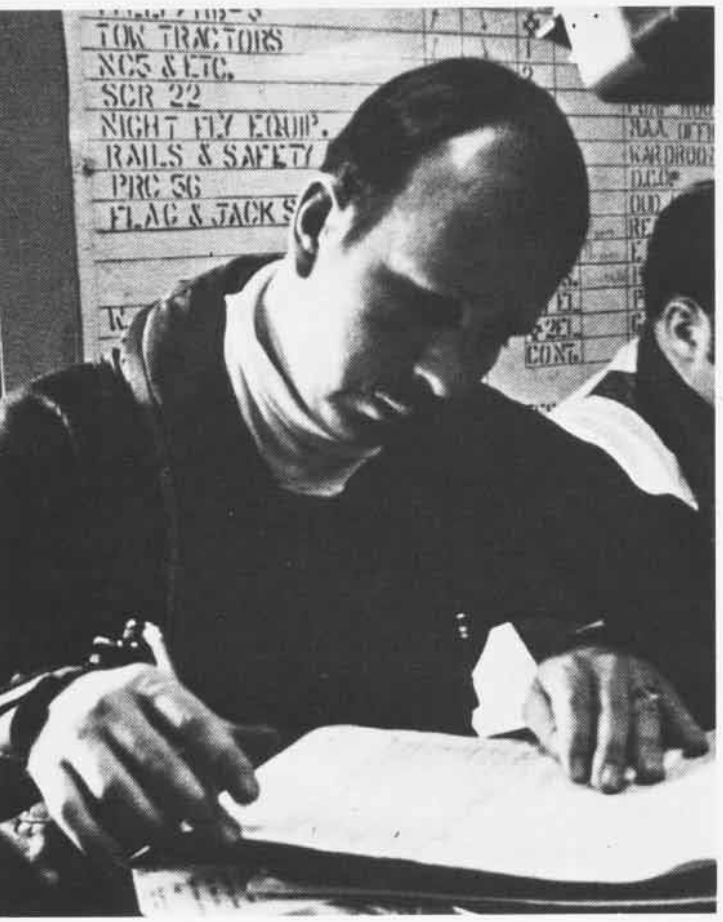
According to Capt. Stockton, "We will gather considerable data while building the team's competence and confidence for the development of tactics next fall. The complexity of the tests and evaluation will depend on the progress we make now, and the equipment available for installation in the aircraft.

"The Interim Sea Control Ship is the test bed. However, the mission of the SCS, as we envision it, will be to operate in an area where there is a minimum enemy air threat or where the U.S. has a substantial margin of air superiority."

The captain emphasized that the sea control ship is not to be compared to an attack aircraft carrier because it has an entirely different mission.

"Its job," the captain says, "is to escort a high value convoy or force without carrier protection."

An H-3 Sea King stands by for takeoff from Guam, above. Lt. William S. Orr, Jr., fills out a yellow sheet in Guam's ready room, below left. A Canadian Air Force XL-84 comes in for a landing as part of the VSTOL evaluations, below. The end of a long, hard day, right.



Letters

Dogs and Cats

In the January issue of *Naval Aviation News* under "Letters," you show a picture of a PBY-5A and ask for aid in identification.

Well — sorry to steal the Navy's thunder, all you old "Sea Dogs," but I think that the aircraft pictured is a PBY-5A that was manufactured for the Army Air Force emergency rescue squadrons by Consolidated of Canada. The Canadian model, PBY-5, was painted a very dark shade of blue (RCAF blue) with a white belly. AAF emergency rescue squadrons (forerunners of air-sea rescue squadrons in 1945) comprised PBY's, B-17's (with airborne lifeboat) and 65, 87 and 104-foot crash boats manned by AAF crew members trained at Gulfport, Miss., with some beaching instruction at NAS Pensacola. These were assigned to the 7th and 13th AAF Pacific Theater and the 8th and 9th AAF European Theater between 1942 and 1945.

The responsibility of rescue by air from the sea was an Army function, I believe, in war theaters, with the exception of CONUS where the Coast Guard assumed responsibility. I think that the pictured aircraft is probably one of those shipped back stateside by the USAF and assigned to USCG Air Station San Francisco.

Thomas C. Cushing
Former SSgt. (Flight Engineer)
2nd Emergency Rescue Squadron
13th Army Air Force, Pacific

The above views and additional background information are appreciated but, in this case, "old Sea Dogs" hold their own! Research for the *Cats* narrative on page 22, indicates that PBY-5A #34020 was delivered to the Navy on September 20, 1943, operated at CGAS South San Francisco 1944-45 and served at Seattle and NARTU's Jacksonville and Memphis during the early '50's before being stricken at Litchfield Park in 1956 after 2,931 hours — no combat theater or overseas service. (Those interested in the life history of an individual Navy aircraft may obtain it for a slight reproduction fee — provided you know the bureau or serial number of the aircraft — by contacting the National Air and Space Museum, Smithsonian Institution, Washington, D.C. 20560, Attention: Aircraft History Cards. Remember, cards are filed and retrievable only by the plane's number.)

During W.W. II it became apparent that independent rescue activities by the Army, Navy, USMC and USCG were creating duplication of effort and, on a suggestion from the Coast Guard which had been operating under the Navy by executive order since November 1, 1941, the Secretary of the Navy created in March 1944 a single air-sea rescue agency in which the four services were represented and over which was the Commandant of the Coast Guard.

About the Insignia

VP-11's *Pegasus* (originated in 1933 by the squadron's forbear, VP-6) has a claim to fame that probably no other squadron can boast, i.e., direct correspondence between two U.S. cabinet officers regarding the insignia. On March 12, 1935, the Secretary of War addressed the following letter to the Secretary of the Navy:

> Records of this office indicate approval of an aircraft insignia for the 28th Division Aviation, National Guard, on April 10, 1931. . . . The *Pegasus* has since been adopted by certain units of the Navy Department. . . . In all fairness, it is requested that, if the *Pegasus* was adopted by the Navy Department unit subsequent to April 10, 1931, action be taken to modify it.
>
> George H. Dern
> Secretary of War

No reply to the above has been found in the records, nor was evidence of any modification of VP-6's *Pegasus*. In fact, it "flew on" with VP-6, and later with its 1939 successor, VP-23, and finally through further redesignation, with VP-11 in 1941. The insignia is registered with the present VP-11 at Brunswick, Maine, and it ranks with the very few, old emblems still "on active duty."

VP-12 traces the *Flying Eightballs* to the 1929 origin of VP-8 which, on redesignation, lamented losing its emblem with this *Ode to the Eight Ball*:

> Ay, tear that rusted 8-ball down!
> long has it rolled on high,
> And many an eye has danced to see
> that emblem in the sky;
> Beneath it rung the battle shout,
> and burst the Mark 3's roar;
> The meteor of the ocean air
> shall sweep the clouds no more.

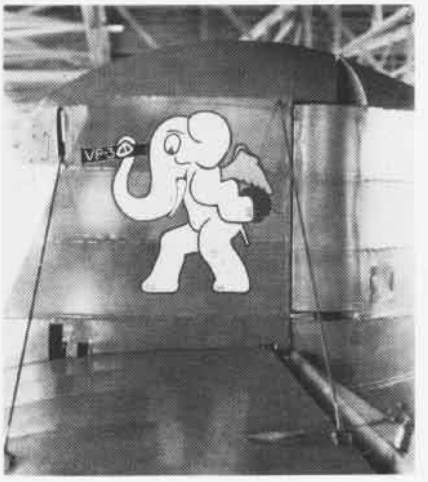
With the loss of the 8-ball insignia through redesignation, the squadron adopted "a winged monster, guided by the experienced hands of the squadron personnel, the winged man, guarding and patrolling the Hawaiian Islands portrayed by Diamond Head, the Gibraltar of the Pacific." In June 1944, however, VP-12 applied for a change, stating that the "life-saver cat symbolizes the many tasks performed by all *Black Cat* squadrons, from bombing to sea rescue."

VP-33 obtained CNO approval in April 1944 for "the black cat, armed with telescope and depth charge, superimposed on an enlarged cats eye as an original and appropriate insignia for this *Black Cat* squadron."

VP-34, commissioned on the East Coast in April 1942 with no planes, gained some PBY-5 training by borrowing one from VP-81. Both squadrons were in existence before their *Black Cat* assignments and, like so many others, had insignia before being called on to perform the nocturnal operations of a feline.

VP-44, *Black Catting* out of Green Island in mid-1944, had requested its "hot tin roof-like" cat insignia because it "depicts stealth in the dark, surprise and viciousness in attack, and denotes ill luck for any whose path it may cross. The background of the yellow moon emphasizes the night operations, suggesting that the 'cats' operate best when the moon is full."

VP-52's famous insignia dates from 1929 when BuAer approved the elephant for VT-3-D15, "the great grandfather" of VP-52. By 1937, descendant VP-3 had refined the emblem and the following next of kin, VP-32, passed it on through another redesignation, to VP-52 in July 1941. (As it finally turned out — probably because of the weather — the elephant became gray. But somewhere in its early lineage, it was pink.)



VP's 71, 81 and 101 have no recorded insignia files, but their emblems were found in the June 1943 and special December 1944 editions (now out of print) of the *National Geographic Magazine*.

VP-54 has no file nor was it in the *Geographic's* listing. Anyone know about its insignia?

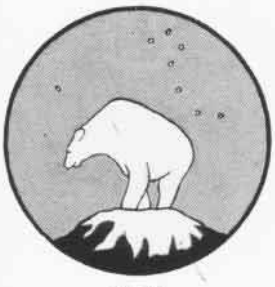
BLACK CATS

VP-11

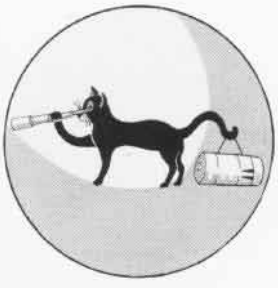
VP-12

VP-101

VP-12



VP-81



VP-33

VP-71

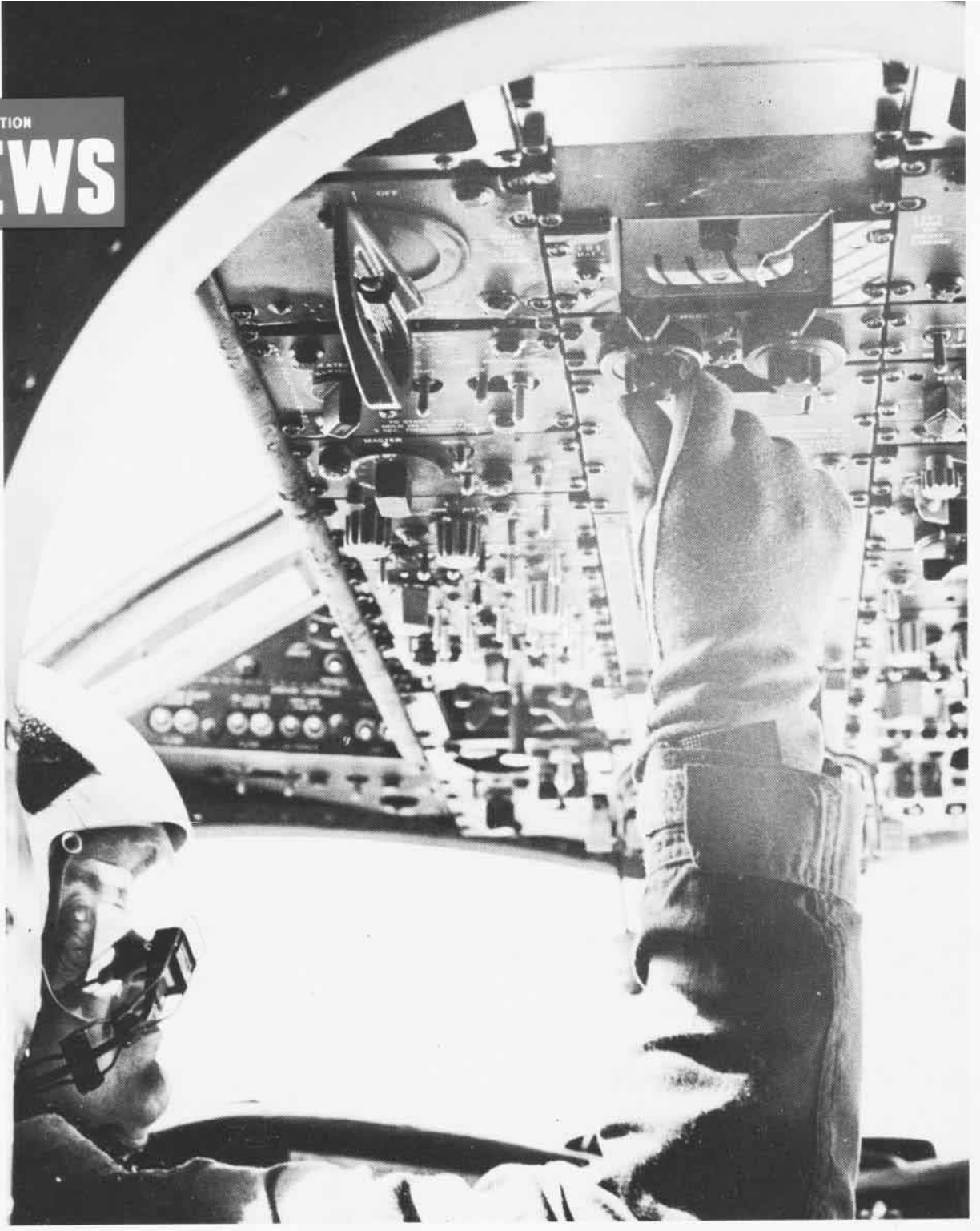
VP-34

VP-52

VP-44

SQUADRON INSIGNIA

Naval Aviation
NEWS



Which Switch?

There's more to it than turning on the key. There's more to it than just sitting in the cockpit. There's more to it than flipping a switch, turning a dial or pressing a button. There's a lot more to being a Naval Aviator. For information see your local Navy Recruiter.